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Targeting Erosion Control

Delivering Technical and Financial Assistance

A Report from a National Research Project

U.S. Department of Agriculture Project Personnel

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Abstract

Targeting of SCS technical assistance and ASCS cost-sharing programs on critical erosion areas started in 1981-82. Some new program approaches were tried, but the primary effect came from increased staff and funds following approaches traditionally used by the conservation agencies. As targeting proceeded, farmers already in these programs increased their participation in the conservation delivery system. But there were few new participants. Targeting shifted SCS staff away from nontargeted areas; however, 88 percent of the decline in staff in nontargeted areas between 1980 and 1983 is attributable to declines in real budgets and cuts in personnel ceilings. Attitudes will have an important effect on targeting; most of the unfavorable attitudes stem from factors other than the targeting concept, the way the program is operating, or its chances of success.

Keywords: Targeting, soil conservation, erosion control, technical assistance, cost-sharing, delivery system, participation.

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Preface

Resource problems are concentrated in limited geographic areas. But USDA conservation efforts have been spread rather widely and uniformly throughout the agricultural areas of the Nation. The U.S. Department of Agriculture launched a national program to target conservation efforts on critical resource problem areas in 1981. The decision to pursue this policy option for achieving conservation goals came about because of concerns expressed by Congress, conservation agencies of USDA, others in the executive branch, and the public at large.

Targeting was a central thrust of planning under the Soil and Water Resources Conservation Act passed by Congress in 1977 (RCA), and was seen as a way of increasing the effectiveness of public expenditures on conservation. While targeting is a USDA-wide initiative, the key agencies in designing and implementing the program are the Soil Conservation Service (SCS) and the Agricultural Stabilization and Conservation Service (ASCS).

As part of their ongoing research on conservation, the Agricultural Research Service and the Economic Research Service of the USDA designed and carried out a research project on targeting in close cooperation with SCS and ASCS at the national, state, and county levels. The objectives of the project were to analyze: (1) the delivery system used in implementing the targeting program; (2) the change in farmers' use of recommended erosion control practices and factors associated with adoption; and (3) the impacts of the targeting program on farm income and long-term agricultural productivity.

SCS and ASCS targeted resources to address problems of water and wind erosion on cropland and rangelands, water conservation, and salinity problems. However, the research project addresses only programs for controlling water erosion on cropland, the resource problem with the highest priority on USDA's agenda, and the one receiving the largest proportion of targeted funds and personnel.

We do not address the question of whether the federal government should spend more or less on conservation efforts. Rather the research concerns whether greater payoff from public investments in conservation can be achieved through targeting of erosion control programs as contrasted to traditional approaches.

We recognized that the "national" conservation problem is a composite of problems of different physiographic and socioeconomic areas across the country and to which different approaches to program design and execution may be relevant. So the decision was made to study the targeting program in detail in one state in each of the four major water erosion areas that USDA targeted starting in 1981, namely Alabama in the Coastal Plain; Missouri in the Corn Belt; Tennessee in the Mississippi Valley Uplands; and Washington in the Palouse area of the Pacific Northwest.

The general research approach was to start with the objectives of the targeting program; to see how these objectives were translated into an operating program in the field; and then trace the impacts on farmers' adoption of erosion control practices, farm incomes, and other effects.

Acknowledgments

Many people contributed to the research reported here. We want to express our appreciation especially to the following.

- Farm operators who participated in the surveys in Barbour and Henry counties, Alabama; Daviess and Harrison counties, Missouri; Dyer and Haywood counties, Tennessee; and Columbia and Walla Walla counties, Washington.

- The SCS District Conservationists (DCs) and ASCS County Executive Directors (CEDs) in the counties listed above who participated in multiple interviews and provided a great deal of data and information about their counties and their conservation programs.

- Staff in the area and state SCS and ASCS offices in the study states of Alabama, Missouri, Tennessee, and Washington who were interviewed several times and provided a large amount of data and information and to state staff persons who reviewed an early draft of this report. Also, state SCS and ASCS staff interviewed in other states; namely, California, Georgia, Idaho, Indiana, Iowa, Minnesota, North Carolina, Oregon, and Texas.

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- The following who provided insightful comments on an earlier draft on the report: Kenneth L. Williams, formerly Deputy Chief of SCS for Planning and Evaluation; M.L. Cotner, ERS, Washington, D.C.; Neil R. Cook, Natural Resource Economics Division, ERS, Little Rock, Arkansas; and Barbara Osgood, SCS Technical Center, Chester, Pennsylvania.

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Glossary

Agencies, Organizations, and Personnel Titles

ARS - Agricultural Research Service, U.S. Department of Agriculture (USDA)

ASCS - Agricultural Stabilization and Conservation Service, USDA

CED - County Executive Director (ASCS)

DC - District Conservationist (SCS)

ERS - Economic Research Service, USDA

GAO - Government Accounting Office (Congress)

NACD - National Association of Conservation Districts

NTC - National Technical Center (SCS centers located in each of the four regions)

OMB - Office of Management and Budget

SACD - State Association of Conservation Districts

SCD - Soil Conservation District (works closely with SCS; usually covers a county, but many cover more or less than a county)

Acts and Program Items

ACP - Agricultural Conservation Program (through which ASCS provides cost-sharing assistance to farmers for conservation and related items)

CRES - Conservation Reporting and Evaluation System (operated jointly by ASCS and SCS)

CTA - Conservation Technical Assistance (the program through which SCS provides technical assistance on conservation to farmers and others)

LTA - Long-term agreement under which ASCS provides cost-sharing assistance to farmers. LTAs represent an agreement for 6 to 10 years covering the entire farm.

Mini-LTA - An agreement for 3 to 5 years and may cover planning for only part of a farm.

NCP - National Conservation Program (5-year programs required by RCA)

NRI - National Resource Inventory

RCA - Soil and Water Resources Conservation Act (Public Law 95-192 passed by Congress in 1977)

T - Soil loss tolerance levels (the maximum soil loss that can be sustained without reducing the long-term productivity of the soils)

VC/SL - Variable cost-share level in which the rate of ASCS cost-sharing per acre varies with the amount of reduction in soil loss achieved by the cost-shared practice.

Summary

Additional resources under targeting permitted some counties to increase the effectiveness of their erosion control programs. While some new approaches were tried, the main program impact was an overall acceleration effect whereby more SCS staff and ASCS cost-sharing funds using traditional approaches were applied by the agencies.

Among the five objectives of targeting, both SCS and ASCS gave strong emphasis to accelerating adoption of erosion control practices and reducing soil loss, moderate emphasis to maintaining long-term productivity and increasing cost effectiveness, and relatively little emphasis to offsite damage.

Farmers increased their participation in SCS activities and their use of ASCS cost-share funds, became more aware of the need for erosion control, and became more inclined to use erosion control practices. Attitudes will have an effect on the future of targeting. Many people hold favorable attitudes toward it. Some unfavorable attitudes stem more from concern for nontargeted areas and a feeling of being left out than from the targeting concept, the way the program is operating, or its likely success.

This report covers how targeting, initiated in 1981, was conceived and operated, findings regarding the delivery system, and suggestions for program improvement.

The report was written primarily for conservation decisionmakers. Its objective is to provide information useful in making near-term adjustments in targeting organization and management and in policy development and program planning.

Major suggestions for improving program design, implementation, and personnel policies are summarized below.

Greater Attention to Differences Among Areas Would Produce More Effective Program Design

Some national priorities and direction are needed for targeting to be successful. But, there were wide differences among areas in resource problems, people, and social systems. Many factors had quite different influences among the four study regions in explaining variations in participation in the conservation delivery system and adoption of erosion control practices. Within national and state guidelines, there should be sufficient flexibility to permit county personnel to fit programs to local conditions and use the capabilities of conservation professionals and local leaders.

Broaden The Criteria for Selecting Targeted Areas

Targeting could be improved if data now becoming available are used to give greater weight to productivity, badly eroded soils, offsite damage, and economic factors in selecting areas to target.

Give More Attention to Timing and Rate Of Flow Of Resources Into Targeted Areas

Acceleration was too fast during the first 2 years of targeting. Much more acceleration was needed than provided after the second year. The optimum period of time and flow of resources for a number of agricultural areas suggested is: a 1- to 2-year startup period, a 3- and 4-year period of peak workload and accomplishments, and a 1- and 2-year phaseout period.

Strengthen The Role of State and Local Conservation Organizations in Planning and Implementing Targeted Programs

Participation in delivery system activities and acceptance of erosion control practices were greater in areas where state and local conservation organizations were involved in targeting. This was especially true where local SCD boards became actively involved in planning and carrying out the program, spoke at field days, contacted farmers, and carried out other activities to interest other farmers in conservation and the targeting program.

Require More State and Local Financial Support for Targeting

Requiring more financial support from state and local sources sometimes will not be consistent with concentrating federal resources in the most critical erosion areas. But, there was greater progress under targeting where there was convergence of state/local monies with federal funds. Where state and local groups contribute more of the financing, they have more of a voice in the program. With more at stake, they become more involved. Pooling funds from various sources adds both stability and flexibility to targeting.

Emphasize Partial Plans, LTAs, Profitability, and Flexibility in Conservation Planning

Some state staffs and DCs still overemphasize complete, formal farm conservation plans and reducing erosion to tolerance levels. Targeting could be improved by emphasizing partial plans, LTAs, profitability of practices, and fitting plans to farming systems and the needs and interests of farmers.

Encourage SCS Field Staffs to Devote Greater Efforts to Reach New Cooperators

SCS reached relatively few new participants through targeting. About a third of the farmers in the sample said they had never received help from SCS, and over 40 percent gave this response in some states. The philosophy of many SCS personnel of concentrating on farmers who are "ready, willing and able" does not seem relevant to targeting where additional staff and other resources are available to make major progress in critical erosion areas.

Improve SCS Personnel Policies for Targeting

SCS staff performance in targeting could be improved by giving more attention to special training needs, providing longer tenure in targeted areas, adequately rewarding personnel who successfully carry out targeting objectives, and making modest additional investments in professional improvement activities.

* * * * * *

Data in this report are based mainly on personal interviews with 709 farmers in the four major water erosion areas targeted by the USDA, a phone survey of DCs and CEDs, and personal interviews with conservation professionals and others.

Targeting Erosion Control

Delivering Technical and Financial Assistance

James Nielson

I. Introduction

This report presents an analysis of the conservation delivery system used in implementing targeting for erosion control. Targeting is designed to accelerate conservation treatment in areas with critical erosion problems. Our analysis focuses on the acceleration that comes through adding staff and funds to existing conservation programs. We concentrate on the portion of the conservation delivery system in which SCS provides technical assistance and ASCS provides cost-sharing funds to assist farmers in applying erosion control practices.

We describe what was done in carrying out targeting programs at the national level and in selected states and counties, give reactions to targeting from those who implemented it and those affected by it, present findings on various facets of the organization and operation of the delivery system, and offer suggestions for improving the system. Our various findings are italicized in the text, while our suggestions are emphasized by bold typeface.

We designed the research to meet information needs of those who make policy, program, and budget decisions on conservation efforts, primarily in the federal government. Our primary audience is USDA conservation agencies, others in the executive branch, and Congress. Our objective is to provide information useful in making near-term adjustments to improve targeting organization and management and in longer term policy development and program planning such as: (1) making decisions on the nature and extent of future targeting efforts; (2) deciding on allocations of resources among alternative conservation programs and incentive measures; and (3) conducting the 1985 resource appraisal and planning required by the RCA.

How We Did The Research

A model for analyzing erosion control programs guided us throughout the entire research project (fig. 1). This conceptual framework helped us in studying relationships among major sets of variables, from factors external and internal to the farm family that affect participation in the conservation delivery system and adoption of erosion control practices to economic and environmental impacts of targeting. The analyses in this report emphasize targeted and base conservation programs as they interact with economic, social, technological, and internal factors in influencing participation and other intermediate outcomes of targeting.

State and county analyses focus on targeted areas in one state in each of the four major water erosion areas USDA targeted for erosion control in 1981: namely, the 16-county south Alabama area; the 9-county Green Hills area in northwest Missouri; the 22-county west Tennessee area; and 13 Palouse counties in eastern Washington. Within each of these areas, we conducted detailed case studies of targeting in two counties to give a broader base than a one-county case study and also to see if there were differences in targeting programs among counties in rather homogeneous areas. We selected Barbour and Henry counties in Alabama, Daviess and Harrison counties in Missouri, Dyer and Haywood counties in Tennessee, and Columbia and Walla Walla counties in Washington. In selecting the counties, we asked representatives of the conservation agencies and others to help us find two counties typical of the agriculture of the region. For example, in Missouri we sought counties most typical of Corn Belt agriculture.

We conducted personal interviews with about 85 farm operators in each of the eight counties (709 usable forms in all) during the winter of 1983-84. We drew samples from lists provided by the county ASCS offices. More information on sampling is in the appendix to this report. Greater detail on how we conducted the surveys, descriptions of the areas, and essentially all of the data from the farm surveys are presented in the Basebook published as part of this research.

In these study states and counties, we repeated personal interviews with SCS and ASCS staffs over a 2-year period. The state and county offices also provided considerable data about their targeted and base programs from their records. We also interviewed some SCS area and ASCS district staffs within the study areas and we visited some Extension Service staffs.

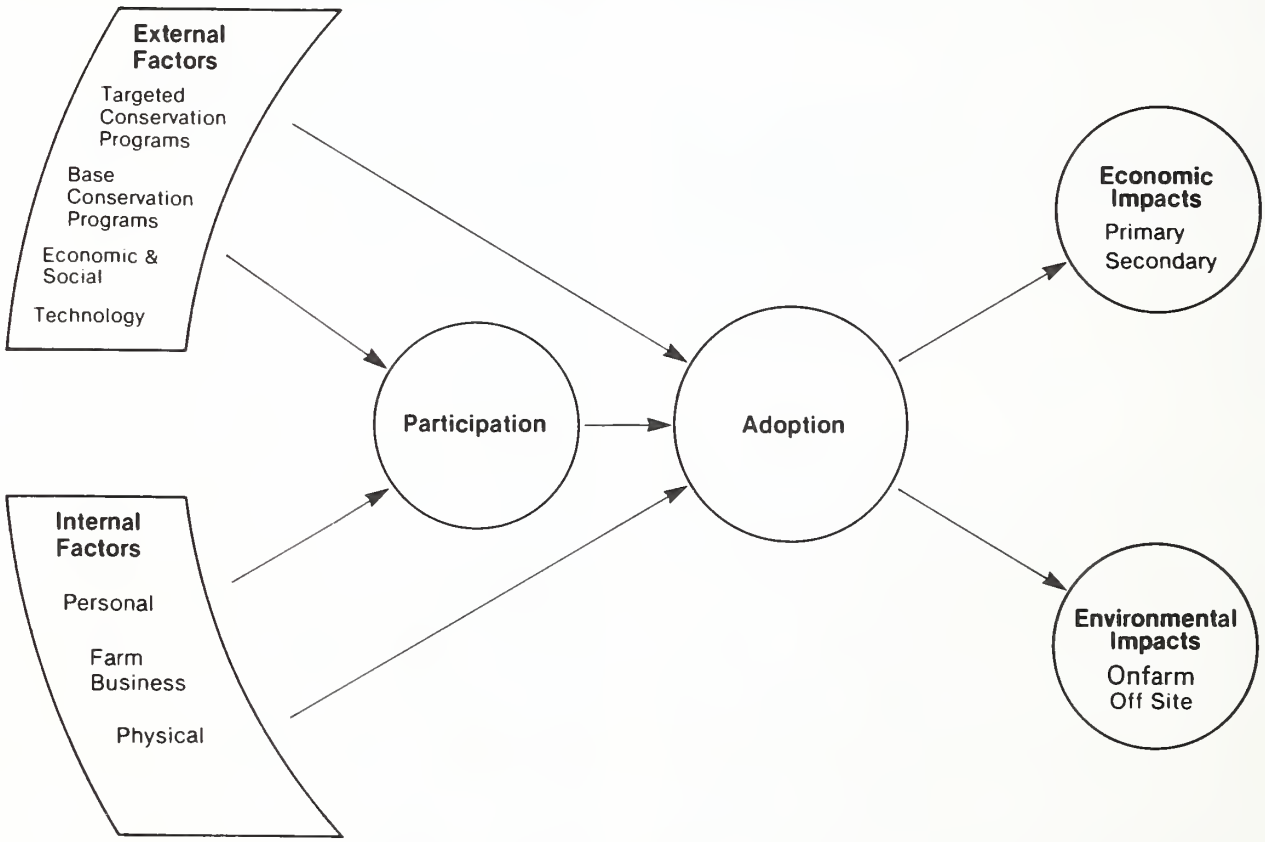
We reviewed targeting programs more briefly in nine other states to obtain broader insights. We selected states to obtain geographic distribution and a mix of states targeted in 1981 and 1983. The states included four targeted in 1981 (Georgia, Idaho, Iowa, and Oregon) and five targeted in 1983 (California, Indiana, Minnesota, North Carolina, and Texas). We conducted personal interviews with state SCS and ASCS staffs in these states, and studied targeting plans and reports they provided. This report concentrates on information from the four study states and eight study counties, but draws on information and ideas from the nine other states in arriving at findings and suggestions.

Phone interviews were conducted with county SCS and ASCS staffs in all 13 states.

We also conducted personal interviews with staffs of the national headquarters of the conservation agencies; Office of the Secretary of Agriculture; Office of Management and Budget (OMB); congressional staffs; and representatives of conservation organiza-

Figure 1

Model for Analyzing Erosion Control Programs



tions. In addition, we obtained data from the Conservation Reporting and Evaluation System (CRES), a national system operated jointly by ASCS and SCS and in which many county staffs participate through the use of Form AD-862 which provides considerable information on conservation treatment and its effects. We also drew on other national data bases of ASCS and SCS.

The areas we studied were targeted by SCS in the spring of 1981 in Alabama, Missouri, and Tennessee, and in the fall of 1981 in Washington; all four areas were targeted by ASCS in the spring of 1982. Our research focuses on changes from 1980, the last full year that could not have been influenced by targeting, to 1983. Thus, we obtained insights on what happened during about the first 2-½ years of the USDA targeting effort.

Inferences from this research flow from these basic conditions: the states are typical of the four water erosion regions targeted by the USDA, the study counties are typical of the targeted areas within those states, and farmers surveyed are a representative sample of farmers within their counties. We drew the samples randomly. Our tests indicated the sample sizes were large enough that we could say with 95-percent confidence the samples would represent the total sample population in each of the eight counties. Our refusal rate was less than 2 percent.

The phone survey questionnaires were carefully devised, pretested, and used by an experienced interviewer. The data from them are useful to supplement other data, but the data from our personal interviews with farmers and agency professionals are more reliable.

How much of the 1980-83 change in the targeted areas that can be attributed to targeting is difficult to determine. The base or ongoing conservation program, extension, other change agents, and other economic and social factors would also affect farmers' decisions and actions. Control areas were considered, but rejected because there were few non-targeted counties matching the characteristics of the study counties. So, we selected counties that appeared to be free from outside disturbances (such as other special programs) and relied on our analysis to sort out the targeting effects.

At various points in the report, we follow a sequence in reporting our findings. First we set forth what was done in carrying out the program. Then, we report farmers' and/or staff views on what was done. These perceptions or feelings are relevant since they can influence future program acceptance, support, and success. Third, where we have basis to do so, we state our conclusions or findings based on all of the evidence at hand.

We found many things the conservation agencies had done well. We think we also discovered some things that could be done even better. In a number of cases we suggest improvement in the delivery system. In doing so, we sometimes draw on our own judgment on the matter.

Why Targeting?

Congress, USDA conservation agencies, and the public have expressed concern about the continued severity of erosion. Sheet, rill, and wind erosion on U.S. cropland averages 6.8 tons per acre per year. A third of the land has erosion exceeding T values that average about 5 tons per acre per year.[1] In some areas, average erosion rates on cropland are about 40 tons. A sizable acreage erodes at rates of 50 to 100 tons per year (*14*).[2]

There are two major concerns about soil loss due to erosion: its effect on the productivity capacity of the land and the offsite environmental damages it causes.

Why does the erosion problem persist in spite of the availability of technology to control it and USDA's investment of about $18 billion in conservation programs since the 1930s? The main reason cited in various studies since the mid-1970s is that, whereas the most serious erosion problems are concentrated on a small proportion of the Nation's cropland, USDA conservation programs are spread rather widely and uniformly throughout the country. The SCS task force report in 1975 (*16*), the Government

[1]T values refer to soil loss tolerance levels and are defined as the maximum soil loss that can be sustained without reducing the long-term productivity of the soils. Throughout this report the symbol T is always used to refer to T values and is never used to denote tons of soil.

[2]Italicized numbers in parentheses refer to literature cited at the end of this report.

Accounting Office (GAO) evaluation of USDA's soil conservation activities in 1977 (*12*), and ASCS's evaluation of the Agricultural Conservation Program (ACP) published in 1980 (*15*) all emphasized the gap between concentration of erosion problems and the dispersion of USDA conservation programs. Then, Congress expressed its concern about the conditions of the Nation's resources and the state of USDA's conservation programs by passing RCA. RCA called for continuous and comprehensive appraisal of the Nation's soil and water resources, the development of a national soil and water conservation program to guide the Department's conservation activities, and a continuing evaluation of the program's effectiveness.

The 1980 appraisal under the RCA process showed that 54 percent of all sheet and rill erosion and 89 percent of the excessive erosion occurs in 10 percent of the Nation's cropland where erosion exceeds 10 tons per acre (*14*). At the same time, the ACP evaluation and the RCA appraisal dramatized the fact that USDA's technical and financial assistance was not focused on the most erosive lands, and that indeed a large proportion of it was devoted to land that has only minor erosion problems. The ACP study indicated that cost-sharing could save three times the amount of soil it was then saving if funds were targeted to land with severe erosion problems.

Increasingly tight federal budget conditions also added to the demand for targeting. Targeting was viewed as a way to maintain future agricultural productivity without significantly increasing funding for conservation programs.

Targeting of the USDA's technical and financial assistance became a centerpiece of the National Conservation Program (NCP) that the President transmitted to Congress on December 21, 1982 (*13*).[3]

Some controversy surrounded the initation of targeting. There were pressures against change from a bureaucracy that was fairly comfortable with its programs, Members of Congress who were concerned that their constituencies might receive "a smaller share," and a clientele who viewed the existing allocations as a right and who were mostly interested in targeting if funding for conservation programs were increased. But, targeting was launched with much support from the executive and legislative branches of the federal government and was supported by a large majority of the public who responded to the proposal during the RCA planning.

How Targeting was Initiated at The National Level

This brief section outlines the concept and objectives of targeting and how the USDA program was launched at the national level.

The Concept

Targeting means to concentrate resources on high priority problems. Even though they may not use the term, managers apply the concept whenever they use benefit-cost analysis (B/C), management by objective (MBO), zero-based budgeting (ZBB), or other processes for establishing priorities and reallocating resources to focus attention on selected activities, programs, projects, groups, or areas. Targeting as a concept is easy for public decisionmakers to agree to in principle. But, problems frequently arise in deciding on the criteria for selecting the targets, on who is to select them, the processes to be used in carrying out the targeting, and especially on where the funds are to come from.

In initiating the new national effort, the USDA defined targeting as a strategy for allocating additional resources to specific geographic areas based on identified critical resource problems, conditions, and needs.

Targeting Objectives and Plans

Key elements of the USDA targeting effort as outlined in the NCP were:

- Critical resource problem areas were defined as those where the problem, if untreated, would impair long-term productive capacity and was extensive enough to have an effect on national agricultural production.

[3]Congress had also emphasized the need to target conservation expenditures to the Nation's more erosive lands in the Special Areas Conservation Program that was a part of the Food and Agriculture Act of 1981. Although authorized, this program has never been funded.

- Areas will be targeted until the targeted resource problem has been substantially corrected.
- Targeted funds will not become a part of the base level of assistance.
- Extent and duration of the targeting effort will depend on the availability of funds and progress in treating the problems.

The objectives of targeting for cropland erosion control were to:

- Accelerate the application of conservation practices in critical erosion areas.
- Reduce soil loss.
- Maintain long-term productivity of agriculture.
- Reduce offsite damages.
- Increase cost-effectiveness in solving conservation problems.

Plans for the targeting program as outlined in the NCP called for SCS to target 5 percent of its conservation technical assistance (CTA) funds and for ASCS to target 5 percent of its Agricultural Conservation Program (ACP) cost-sharing funds starting in 1983. Under the plan, each agency would increase its commitment to targeting by 5 percentage points each year until 25 percent of the funds were targeted in the fifth year of the program, 1987.

Launching the Program

In fact, SCS launched the targeting program in the spring of 1981, using $4 million of new discretionary funds. It targeted for cropland erosion control in 10 states and for water conservation in eight states. ASCS joined the national effort in 1982 by reallocating $9 million of its ACP funds to the same areas targeted by SCS in 1981-82. In 1983, targeting formally began under the RCA 5-year plan; SCS targeted 5 percent of its CTA budget and ASCS targeted 10 percent of its ACP funds. In 1984, SCS targeted 10 percent of its CTA budget. ASCS had planned to target 15 percent of its ACP funds, but was constrained at the 10-percent level by congressional action.

Appendix table 1 gives the number of states, counties, and acres SCS targeted from 1981 through 1984. Figures 2 through 4 show the location of areas targeted by purpose for 1981-82, 1983, and 1984.

ASCS targeted many of the areas targeted by SCS; it did not target all of them, primarily because the agency did not believe it had sufficient funds. Appendix table 2 summarizes funds targeted by both SCS and ASCS for 1981 through 1984.

Both agencies had firm plans to expand targeting to the 25-percent level envisioned in the NCP for 1987. They also hoped to continue targeting beyond 1987 by rolling over funds from previously targeted to new targeted areas. For 1985, Congress put a cap on targeting at the 10-percent level for both agencies ($27.5 million for SCS and $19 million for ASCS).

For the 5-year period 1981-85, SCS and ASCS targeted $144 million for all purposes, with about 84 percent of the targeted CTA funds and a little less than 80 percent of the targeted cost-share funds allocated to cropland erosion control.

National Guidelines

SCS offered general guidance on the targeting program to the states. This included encouraging targeting within counties, encouraging the use of conservation management systems rather than individual practices, encouraging conservation tillage, and encouraging close working relationships with ASCS in the field. ASCS issued rather specific guidelines on the targeting program to state offices. This guidance included specification of 14 erosion control practices eligible for cost-sharing with targeted funds (primarily enduring practices), encouraging the inclusion of some targeted counties in the variable cost-share level (VC/SL) pilot program, and encouraging the state offices to consult with the SCS state conservationist to determine the amount of cost-sharing funds needed in each targeted county.

Figure 2

Targeted Areas Approved, 1981/82

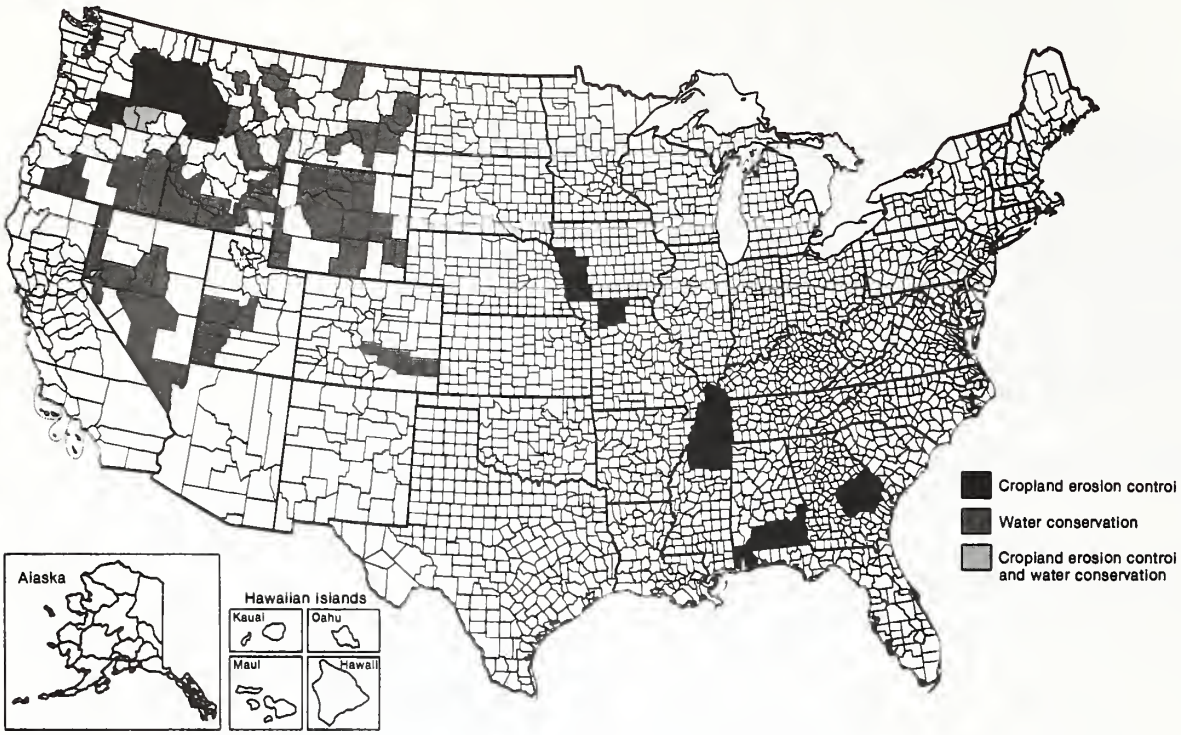


Figure 3

Targeted Areas, Cumulative Approvals, 1981/82 - 1983

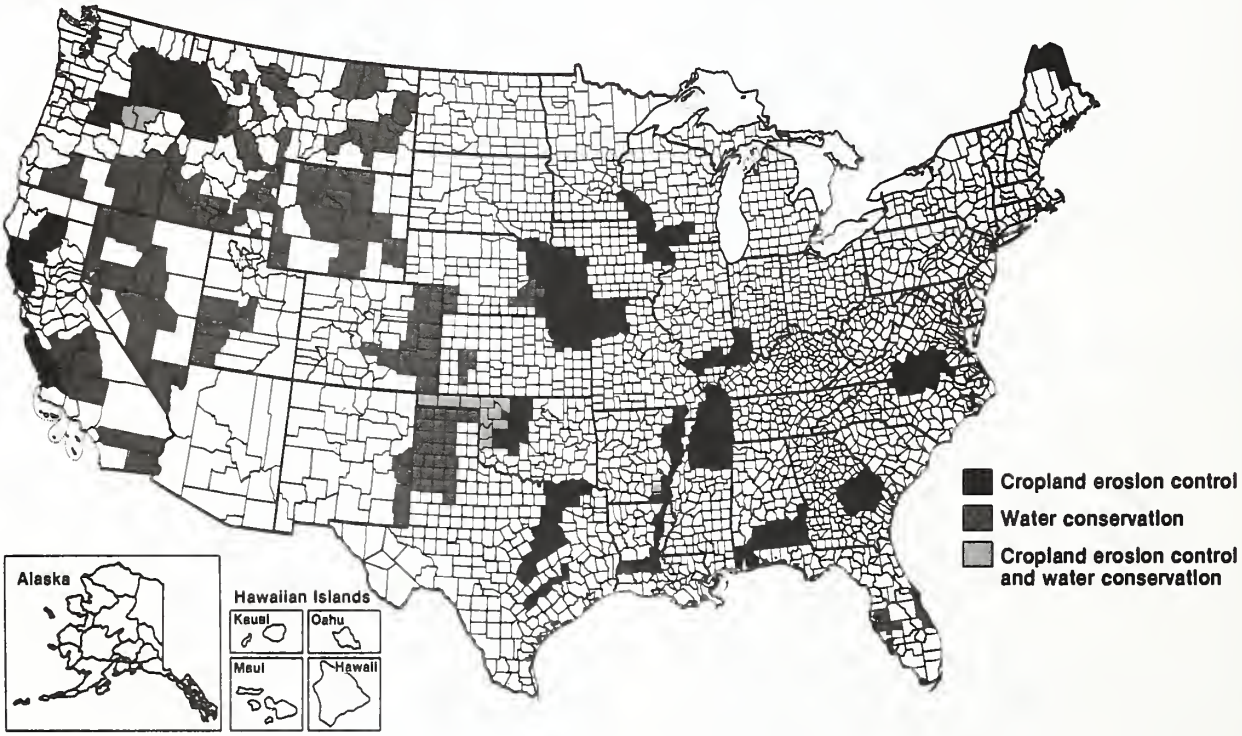
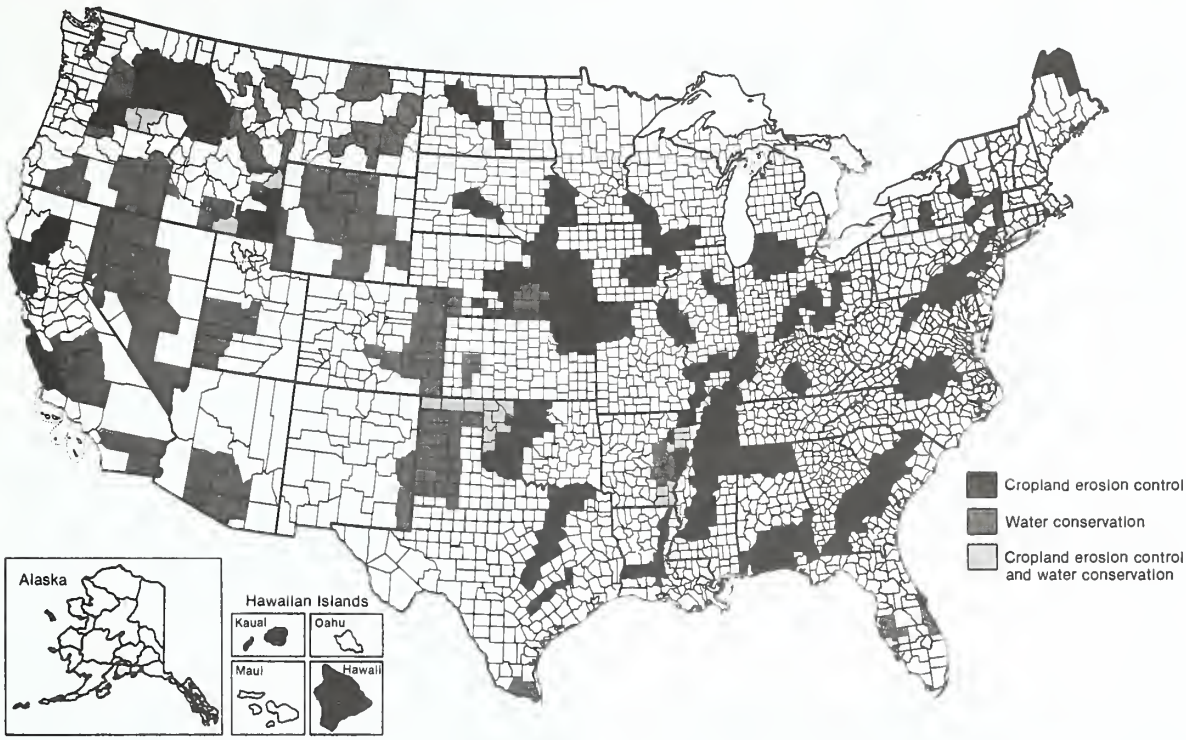


Figure 4

Targeted Areas, Cumulative Approvals, 1981/82 - 1984



II. How Targeting Operated at State and County Levels

This section summarizes distinctive features of targeted programs in study states, similarities and differences in targeting programs among areas, and how targeted conservation programs differed from nontargeted programs. It also presents findings regarding targeted delivery systems.

Distinctive Features of The Conservation Delivery System in Targeted Areas

We outline below distinctive features of programs in targeted areas of four study areas, recognizing that some of these features may have been present whether the areas had been targeted or not.

Alabama

- All targeted cost-share funds were to be earmarked for mini-LTAs in which county personnel from both ASCS and SCS worked with farmers to develop plans for the complete system of practices needed to control erosion on the land covered by the agreement (often a part of the cropland on the farm).

- Two-way radio systems were installed throughout the targeted area so SCS field staffs could contact their offices or get immediate help from an SCS agronomist or engineer while in the field.

Missouri

- Targeting program was placed in an area with a long history of concern for erosion and cooperation in conservation programs.
- An extension community development specialist assisted in finding community leaders who identified conservation problems and what might be done about them. This information was used in planning the targeting program.
- There was a planned convergence of resources from SCS, ASCS, the State Department of Conservation, and state cost-sharing.
- An accelerated information/education program involved the mass media and personal contacts with farmers.

Tennessee

- Targeting program was built on multiagency effort that had started to concentrate conservation resources in the targeted areas several years before the national targeting program began.
- There was heavy emphasis on conservation farm planning.
- SCS conducted conservation training camps in which experienced SCS personnel from central Tennessee spent 1 day, 2 days, or 2 weeks at a time in the targeted area to accelerate conservation planning.
- Resource conservation management demonstration farms and small and large conservation demonstration areas were a multiagency effort.
- Field days and other areawide events were emphasized.

Washington

- Targeted funds were allocated to soil conservation districts (SCDs) to give them a larger role in targeting and let them exert more program leadership.
- In Columbia county (one of the study counties), the targeting program was concentrated in Weller Canyon as a test of conservation ideas, with results later extended to the rest of the county.
- SCS and ASCS placed heavy emphasis on conservation tillage. SCS made no-till drills available to farmers.
- Selected farmers hosted conservation mini-sessions with small groups of farmers.

Similarities and Differences Among Targeted Delivery Systems

We present here information on SCS/ASCS targeted conservation delivery systems, focusing on the eight study counties in four states. We emphasize eight characteristics that seemed likely to affect the outcome of targeting: (1) concept or objectives of targeting, (2) amount of acceleration in resources under targeting, (3) emphasis on information program, (4) whether there was targeting to a geographic area within the targeted counties, (5) extent of targeting on farms with more serious erosion problems, (6) extent of effort to reach new cooperators, (7) emphasis on conservation farm planning, and (8) erosion control practices emphasized by the two agencies. A summary of the characteristics of the targeting programs in the eight study counties is given in table 1.

Concept/Objectives

SCS staffs in the study counties in Alabama and Missouri and in Columbia county, Washington, conceived of targeting as a way to accelerate their ongoing technical assistance programs. In the two counties in Tennessee and in Walla Walla county, Washington, SCS professionals saw targeting as a way to enhance programs already accelerated prior to targeting.

Acceleration in Resources

The increase in resources available to the SCS and ASCS county staffs was especially crucial because such increases are central to the concept of targeting. For SCS's CTA program, the key input is professional staff time which uses over 80 percent of

Table 1—Summary of conservation delivery system characteristics in the eight study counties

	Alabama		Missouri		Tennessee		Washington	
Characteristics	Barbour	Henry	Daviess	Harrison	Dyer	Haywood	Columbia	Walla Walla
Number of farm operators[1]	750	400	900	1,200	950	850	250	900
Conservation history[2]	Moderate	Moderate	Strong	Strong	Weak	Moderate	Moderate	Moderate
Targeting concept, SCS	Accelerate ongoing program	Accelerate ongoing program	Accelerate ongoing program	Accelerate ongoing program	Enhance program already accelerated	Enhance program already accelerated	Accelerate ongoing program	Enhance program already accelerated
Resources:								
Number of SCS staff, 1980	2	2	3	2	3	3	2	4
Increase in number of SCS staff	1	1	0	3	1	1	2/3	2
Resources other than SCS & ASCS	Little	Little	Some	Much	Little	Little	Little	Some
Amount of publicity, SCS	Little	Little	Much	Much	Little	Some	Some	Much
Targeted a geographic area, SCS	Yes	No	No	Yes	No	No	No	Yes
Targeted farms with more serious erosion, SCS	Some	Little	Much	Much	Some	Some	Some	Much
"Knock on doors," SCS	No	No	Yes	Yes	No	No	No	Yes
Conservation planning:								
SCS emphasis	Much-partial	Much-complete	Much-partial	Much-partial	Much-complete	Much-partial	Much-partial	Some-partial
ASCS emphasis, LTAs	Much	Some	Little	Little	Little	Little	Little	Little
Practices emphasized:								
SCS	No-till, rotations, cover crops, terraces	Terraces, gully cont., permanent cover, rotations	Terraces, min-till, warm season grasses	No-till, terraces, permanent cover, warm season grass	Min-till, no-till, terraces	Terraces, min-till, no-till rotations	Min-till, no-till, rotations, divided slope	Min-till, no-till, rotations, divided slope
ASCS	Cons. tillage, terraces	Terraces, permanent cover	Terraces	Terraces	Sediment retention dams, terraces, cons. tillage	Terraces, sod-waterways, sediment retention nent cover	No-till, divided slope, permarent cover	Min-till, no-till, divided slope, permament cover

[1]An indicator of workload or potential clientele. These estimates are smaller than the number of farm units in the counties since many farmers operate more than one farm.
[2]Extent to which farmers have been inclined to participate in conservation activities prior to targeting based on appraisals of the DCs and CEDs.

the county budgets. The key input in ASCS's ACP program is cost-share dollars.

The best measure of the increases was change in the total of base and targeted funds combined following the initiation of the targeting program (since both ASCS and SCS targeted and base funds were used interchangeably at the county level). Data on change in resources were obtained from the state SCS and ASCS offices and are presented in appendix table 3. Percentage increases in budget, representing acceleration, from 1980 to the 1981-83 average by county were as follows:

	Alabama		Missouri	
Agency	Barbour	Henry	Daviess	Harrison
	Percent of increase			
SCS	42	31	14	58
ASCS	125	75	66	36
Total	88	54	47	44

	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of increase				
SCS	18	37	87	97	48
ASCS	15	95	13	47	56
Total	16	67	45	65	53

There was a wide range in the increases in SCS and cost-sharing budgets from 1980 to the average for 1981-83. The differences relate primarily to the state offices' judgment of need and opportunity, as well as special circumstances in the counties. The larger increases in SCS budgets in the two Washington counties reflect monies the state office allocated to the SCDs under cooperative agreements.

Under targeting, the counties had increases in SCS staffs mostly of one, but ranging from zero in Daviess county to three in Harrison county. A technician position was upgraded to soil conservationist, and some additional part-time help was obtained in Daviess county.

In some of the targeted areas, additional funds for conservation work were available during 1981-83 from other federal agencies and from state and local agencies, primarily state sources. In Missouri, for example, additional resources consisted of state cost-sharing, an extension community resource development specialist, and a forestry wildlife specialist assigned to the area by the state department of conservation.

Information Programs

After targeted ACP funds were available, the county ASCS offices continued to announce signups and sent out notices and published newspaper articles indicating that additional cost-sharing funds were available in the county because of targeting. This was done uniformly across the eight counties with the amount of publicity varying primarily with the increase in funds under targeting. On the other hand, there was a wide variation among states and counties in the emphasis SCS placed on information programs. For example, extensive information/education campaigns were conducted in Missouri and in Walla Walla county, while Alabama had a minimal information program.

Targeting Within Counties

SCS and ASCS national offices encouraged extension of the targeting concept to programs within counties; that is, targeting on a geographic area within the county. In three of the eight counties, SCS targeted on an area of the county selected as having the most critical erosion problems. (The state SCS staffs in Indiana reported that all of the counties in their southwest area targeted within counties; about one-half of the counties in Washington did so; and two of the five counties in Oregon did so immediately and others later.) In some cases, this concept was not relevant because erosion problems were scattered widely throughout the counties.

ASCS did not target a geographic area in any of the eight study counties; however, Barbour county work on mini-LTAs was concentrated in the southernmost part of the county. ASCS staffs and county committees believed there were erosion problems in all parts of their counties and that they should not give preference to any part of the county in approving applications for cost-sharing funds. Applications for cost-sharing funds were influenced to some ex-

tent by increased SCS activity in targeted areas of the counties. Two CEDs reported that while their county ASCS committees did not target within the counties, they welcomed such action by SCS because it resulted in more publicity and attention to erosion problems.

Targeting Farms with More Serious Erosion Problems

In line with state SCS policies in Missouri, the DCs in Daviess and Harrison counties carried the concept of targeting one step further by concentrating on farmers with more serious erosion problems. The SCS staff in Walla Walla also concentrated on farms with more serious erosion problems within the targeted area of the county. The Barbour DC concentrated on farmers who signed up for the LTAs, and they tended to be those with the most critical erosion problems. The DCs in the two study counties in Tennessee, in line with state SCS policies, concentrated on farmers who were "ready, willing and able," but within that context, gave priority to those with the most serious erosion problems.

Most CEDs indicated their county committees considered severity of the erosion problem an important criterion in approving applications for cost-sharing. However, there was wide variation among the committees in the extent to which they considered severity of erosion, with lack of definitive information on erosiveness the biggest stumbling block. One CED told us that if his county committee knew what land was most erosive, they would give preference to it, but that usually they didn't know.

Reaching New Participants

The information/education programs emphasized by SCS in several targeted areas were instrumental in reaching some farmers who had not previously participated in conservation programs. In addition, some county SCS staffs made special efforts to reach previous nonparticipants through personal contacts (in SCS parlance, to "knock on doors").

The Missouri state SCS office put a great deal of emphasis on knocking on doors to reach farmers who were previously not cooperators, and included "salesmanship" in their training program for personnel hired to work in the targeting program. The county staffs in Daviess and Harrison told us they had spent considerable time contacting potential new cooperators. The state SCS staff in Washington also encouraged county staffs to contact nonparticipants. The Walla Walla staff tried to contact every dryland farmer in the targeted area at least once each year, and also made special efforts to contact landlords and absentee owners. While the state SCS plan for the targeted area in Alabama called on county staffs to make special efforts to reach new participants, the DCs in both study counties told us their workloads during 1981-83 had not permitted them to reach new cooperators. SCS policies in Tennessee called for county staffs to concentrate on farmers who asked for help, as the state staff believed this would concentrate efforts on farmers who were more likely to change their conservation practices. The DCs in both Dyer and Haywood counties reported that their workloads had permitted little time to knock on doors.

Emphasis on Conservation Planning

Under targeting, the DCs in all eight study counties, except Walla Walla, continued to place heavy emphasis on developing conservation farm plans. Some DCs emphasized the development of complete farm conservation plans, while others concentrated on partial plans, such as planning a field or a part of the farm. Likewise, some county SCS staffs stressed "planning to T" (that is, developing plans that would reduce erosion to tolerance levels or T values). Others simply encouraged farmers to adopt practices that would reduce erosion without getting to T, especially in areas like the Palouse in Washington where rather drastic and expensive control measures are sometimes required to reduce erosion to T.

Outside the study states, SCS in Iowa indicated increased emphasis on complete plans after targeting began, while SCS in Indiana and North Carolina put less emphasis on them.

The phone surveys indicated that, of the 48 DCs in targeted counties in 13 states, 52 percent said they put more emphasis on conservation plans since tar-

geting started, 38 percent said the same, and 10 percent said less.

In 1974, ASCS introduced LTAs under which farmers can enter into contracts with ASCS and agree to install and maintain recommended conservation practices over 3- to 10-year periods in accordance with conservation plans developed in cooperation with SCS. The agreements constitute a contractual agreement under which farmers are committed to carry out the plans and ASCS is committed to provide cost-share assistance annually during the agreement period.

As a joint decision between ASCS and SCS, Alabama earmarked all of its targeted cost-share funds for mini-LTAs. Barbour put much emphasis on LTA planning as a joint ASCS-SCS program, and Henry made some use of LTAs. No other study county emphasized LTAs. Other states, such as Indiana, had previously emphasized LTAs and continued to do so under the targeting program. Several others, such as Oregon, pushed LTAs strongly as a part of the targeting program. In the phone surveys, 63 percent of the CEDs in targeted areas said their emphasis on LTAs remained the same under targeting, 32 percent indicated the emphasis increased, and 5 percent said it decreased.

Practices Emphasized

County SCS staffs in five of the eight study counties gave top priority to conservation tillage among the practices they recommended for erosion control: both Washington counties, Harrison, Dyer, and Barbour. Terraces received highest priority in the other three counties. Some of the emphasis constituted shifts from pretargeting, but not necessarily because of targeting. Emphasis on conservation tillage was part of NCP and represented national SCS policy.

In most of the study counties, ASCS emphasized the same practices that SCS stressed. However, most of the CEDs told us their county committees concentrated their cost-sharing funds on a narrower range of practices than SCS recommended (often one or two practices). Terraces were most often emphasized by ASCS in Alabama, Missouri, and Tennessee.

Staff Views on What was Different Under Targeting

We asked county and state SCS and ASCS staffs in 13 states how being targeted was different from not being targeted (we did this during personal and phone interviews in the spring and summer of 1984).

SCS

Forty-six percent of the DCs on the phone survey said their technical assistance programs had not been modified because of targeting. Our personal interviews indicated that many of the SCS staffs saw relatively little difference under targeting. A typical comment from a DC was this one: "At first I thought targeting was going to be a lot different than our previous program, but after we got into it, I discovered that it was just an acceleration of our ongoing program." On the other hand, one or more of the SCS staff we interviewed said that under targeting their programs were different in the following respects.

- More time spent with farmers; more frequent visits and more time per visit.
- More intensive information/education programs.
- More targeting on critical geographic areas within the counties.
- More zeroing in on farmers with more serious erosion problems.
- Special efforts to reach farmers who previously had not participated in conservation programs.
- More emphasis on partial conservation plans, more thorough job on portions of the farms that were planned, and more emphasis on complete conservation systems as opposed to individual practices.
- More emphasis on areawide as opposed to county activities.
- Special emphasis on conservation tillage.

ASCS

State ASCS staffs indicated that the emphasis on LTAs was a distinctly different approach in the south Alabama targeted area, with some counties pushing this approach more than others. CEDs in several states told us they had increased their cost-share rates under targeting. Some of them reported that, since they knew they would have funds available, the program was easier to administer and they could make referrals to SCS sooner.

Program changes reported on the phone survey by 43 CEDs in targeted counties in 13 states were as follows:

	Percent
Changed procedures used in reviewing and approving applications	2
Changed cost-share rates	12
Increased or limited dollar amount of cost-sharing or practices	14

* * * * * *

Based on reports from the conservation professionals involved and our study of targeting over a 2-year period, we arrived at the following findings in regard to targeted delivery systems. These findings relate only to program changes, not changes in outcomes that may have resulted from the targeting effort.

Most SCS staff conceived of targeting as a way to accelerate ongoing technical assistance activities; a few saw it as a way to enhance programs that had already been accelerated prior to targeting.

SCS's conception of the targeting program at the national, state, and county levels was to accelerate the ongoing program: to do what the staff was already doing, but to do more of it, do it faster or, in some cases, to do it better. On the phone survey, 94 percent of the DCs in targeted counties perceived targeting as accelerating ongoing CTA activities and only 4 percent saw it as a new program.

Of the five objectives of targeting, SCS and ASCS gave strong emphasis to accelerating adoption of erosion control practices and reducing soil loss, moderate emphasis to maintaining long-term productivity and increasing cost-effectiveness, and relatively little emphasis to reducing offsite damages.

Maintaining long-term productivity and reducing offsite damages were mainly recognized as desirable indirect outcomes of efforts to reduce soil loss.

There were relatively large differences among targeted counties in SCS technical assistance programs.

We found rather wide differences among states and counties in technical assistance programs. The differences were manifested in things such as program activities stressed, extent to which the staffs exerted efforts to reach new cooperators, emphasis on complete conservation plans, and practices emphasized.

An important factor influencing the differences was state SCS policies, especially the extent to which tight directives on programs come from state and area offices, and the extent to which county staffs consider it essential to follow the guidelines closely. This was especially true of county emphasis on developing complete conservation plans and "planning to T." For example, the state SCS staff in Tennessee placed a great deal of emphasis on developing complete plans and planning to T; this affected the program in the west Tennessee targeted area, as well as in the rest of the state. The state SCS staff in Missouri placed considerable emphasis on complete plans, but was less insistent on it; the state staff observed that older DCs put more emphasis on complete plans than younger ones did.

A second major factor influencing differences in programs among areas was the amount of additional resources available under targeting, and particularly the size of staff in relation to workload. Other factors that influenced program differences among counties were differences in clientele served, in erosion problems and measures that were relevant to solve them, and in interests of the DC (the latter especially influenced the practices stressed).

There were only moderate differences among targeted counties in ASCS cost-share programs.

We found some differences among county cost-share programs. The differences appeared to be influenced by differences in convictions among ASCS county committees regarding practices that should be stressed, cost-share rates, and dispersal of cost-share funds among farmers. Amount of cost-share funds available and policies of the state ASCS committees and state ASCS offices also resulted in differences.

Targeted SCS technical assistance programs were only moderately different from nontargeted programs.

SCS staff members carefully described what their technical assistance programs were like during 1981-83 and told us how their programs had changed from the pretargeting period. The effect of targeting on programs is difficult to isolate because some of the change would likely have occurred without targeting. In fact, some of the changes also occurred in nontargeted counties. For example, decreasing emphasis on complete farm conservation plans and emphasis on conservation tillage were increasingly accepted as agencywide policy during the study period. The same is probably true to some extent of SCS's increased emphasis on farms with more serious erosion problems.

The biggest changes under targeting are those that can be attributed to more staff and funds being available: stepped up information programs, more time spent on farms, greater efforts to reach new participants, more field days and other activities, and purchases of various kinds of equipment. DCs receiving larger increases in staff and funds under targeting reported greater program change than those receiving smaller increases. A DC who had received only a modest increase under targeting told us: "With limited, even though somewhat increased resources, you can't do anything drastically different."

A second factor influencing change under targeting was the quality of the DC and staff, especially their motivation, enthusiasm, and willingness to try new things.

The detailed planning of the targeting program in some cases appears to have led to decisions to target on geographic areas within counties or to zero in more sharply on farms with more serious erosion problems.

Targeted ASCS cost-share programs were little different from nontargeted programs.

Targeting generated the heavy emphasis on LTAs in some counties in the south Alabama targeted areas and in a few other areas. With increased cost-share funds available under targeting, some county ASCS committees added conservation tillage to their list of eligible practices and increased the cost-share rates on some practices. But overall, there was relatively little difference in cost-share policies and procedures in targeted and nontargeted counties. There was less change in cost-share than in technical assistance programs under targeting.

III. Selecting Targeted Areas and Allocating Resources to Them

This section covers two closely related facets of targeting: selecting the areas and allocating targeted resources to them. We cover how the selections and allocations were carried out, staff reactions to the criteria and processes, our findings, and some suggestions for improvements. Further insights on selecting areas and allocating resources will come from other reports of this research. We present here tentative findings and suggestions based on our analysis of the delivery system.

Selecting Targeted Areas

The first areas targeted for cropland erosion control in 1981-82 were selected in the national SCS office, using severity of the erosion problem in terms of gross tons of soil lost per acre as the sole criterion. Areas had to have erosion rates in excess of 5 tons to be considered for targeting in 1981. The areas selected coincided fairly well with the critical erosion regions outlined in the 1980 RCA appraisal

and generally had average erosion rates of 15 tons or more. Criticism of the criteria used and introspection within the agency led SCS to modify both the criteria and the process used in selecting areas to be targeted.

Criteria Used

Criteria used in selecting new areas for 1983 and subsequent years were: severity and extent of the erosion problem, effect on agricultural productivity and offsite damages, expected results, and local interest and willingness to support the effort. Severity of the erosion problem remained as a selection criterion. But modification of the criteria gave greater weight to the erosion threat to productivity. This led to increased consideration of areas with fragile or sensitive soils, those with shallower soils and lower erosion rates. The agencies tried to give more weight to productivity concepts in selecting targeting areas. But, staff told us they were hampered by lack of data on relationships between erosion and productivity. They used the best data they could find; but as a last resort, fell back on gross soil loss as a proxy.

The agencies also considered impact of soil loss on sedimentation and water quality in selecting target areas. They faced even more formidable obstacles here than in their attempts to consider productivity impacts. They sometimes had to fall back on soil loss data. SCS argued that gross tonnage of soil lost was relevant because of the impact of soil loss on offsite damages; that is, if you cut down soil loss, you cut down on offsite damages.

Expected results were used as a criterion starting in 1983. This criterion was defined as "degree of success expected in terms of accomplishments and cost-effectiveness." The economic base for making changes in practices and the capability of an area for implementing an expanded erosion control program were considered in estimating likelihood of success.

Local interest and support for the proposed targeting effort were also considered. Consideration was given to the attitudes of conservation districts, Extension, and others. SCS and ASCS personnel stressed that it was their philosophy to accelerate a local effort rather than to initiate the effort. They felt that if local citizens and groups do not recognize the problem, there is little chance for success. As the program moved along, increased priority was given to areas that would provide financial support from nonfederal funds, perhaps as a philosophical point, but also to make the federal budgets go further.

* * * * * *

USDA placed heavy emphasis on tons of soil lost and only moderate emphasis on productivity and environmental factors in selecting targeted areas.

Productivity became a more important factor when the criteria used by the USDA were modified. However, productivity still did not receive a great deal of consideration, partly because of data limitations. USDA staff indicated they took offsite damage into account to some extent, but that they did it in an indirect way. They acknowledged that they gave less attention to damage than to productivity. They gave even less attention to the thought of retiring some of the most erosive land from crop production and did relatively little to bring economic analysis to bear on the selection of areas.

We offer two suggestions for improving selection criteria, one related to technical criteria and one to economic criteria.

Within technical criteria, give more weight to productivity, badly eroded soils, and offsite damage.

Maintaining long-term agricultural productivity is a major goal of USDA conservation policy and programs. Rates of soil loss alone are not good indicators of the productivity impacts of erosion; lands eroding at lower rates may suffer greater productivity losses. Soils for which productivity is most threatened are often referred to as fragile or sensitive soils. They generally have relatively shallow topsoil and/or undesirable subsoil characteristics, especially low waterholding capacity. These soils have T values of less than 5 and are likely to suffer proportionately higher losses of productivity if erosion continues, compared with deeper soils. One-third of the Nation's cropland has T values of less than 5.

Implementing productivity criteria is so difficult that criticism even of the modified criteria was probably inevitable (*11*). GAO has applauded USDA's targeting effort, but criticized the criteria used. GAO was especially critical of USDA for continuing to put too much emphasis on reductions in soil displacement (gross tons lost per acre) and too little on reductions in erosion's harmful effects, particularly onsite productivity losses. GAO also cited the offsite damage problem.

USDA faced a shortage of definitive data to support selection decisions based on productivity losses. The data most needed are those that relate erosion to productivity for different soil types and cropping systems. There are a number of useful studies by ARS and the state agricultural experiment stations. The data, while valuable within an area, cannot be extrapolated to other areas because of differences in soil, weather, cropping practices, and other major variables.

We hope that future data and processes will permit application of productivity criteria that are predictive. This is needed for two reasons. Rather than emphasizing current conditions, selection criteria should direct resources toward soils with the highest potential productivity, but which suffer erosion rates threatening that potential. A second reason is that interactions between conservation technology and prospective agricultural production technology in influencing productivity need to be considered (*19, 20*).

Another needed technical criterion relates to soils that have eroded beyond their economic value for crop production. Where there is only a thin layer of topsoil left and/or there are deep gullies, productivity responses may be too small to justify the large investments often required to keep the land in cultivation.

Bills and Heimlich, recently developing a new taxonomy of cropland erosion, concluded that about a third of U.S. cropland is so highly erosive that annual soil loss cannot be reduced to tolerance except under the most restrictive land management practices. They maintained that most often a change to permanent vegetative cover is required on such soils (*2*).

The conservation agencies should be able to do a better job with productivity concepts using data from research now underway. ARS, ERS, and SCS are making extensive use of the EPIC model in testing erosion-related losses in productivity in all major land resource areas (MLRAs) in the country (EPIC stands for erosion-productivity impact calculator). Field experiments have been designed and the collection of definitive research information is underway at over 24 ARS locations across the Nation. Several state agricultural experiment stations are also involved. Larson and associates have developed a soil productivity index to estimate effects of continuing the present rate of erosion for extended periods and to estimate the vulnerability of soil productivity to erosion (*7*).

Bills and Heimlich (*2*), the American Farmland Trust (*1*), and Ogg and associates (*8*) concluded that much of the seriously eroded land should be put under permanent vegetative cover. The AFT study suggested that if the most seriously eroding lands were removed from crop production, the USDA targeting effort could be more successful by focusing resources on the land remaining in crop production. Some farmers might have difficulty, however, producing sufficient income with significant amounts of their land in hay and pasture. And some may need financial assistance to establish and maintain vegetative cover on these lands during some income periods.

Still another technical consideration relates to offsite damages from erosion. Most agree that protecting the environment from erosion should be a second major objective of USDA conservation policy, along with maintaining long-term productivity. Some natural resource specialists believe that offsite environmental effects of erosion are larger than the onfarm productivity effects. SCS did modify its selection criteria to give some attention to the impact of soil loss on sedimentation and water quality.

Implementing offsite criteria is difficult because of lack of data on sediment delivery ratios and difficulties of linking depositions with points of origin. An additional complexity is dealing with tradeoffs between offsite effects and productivity effects in selecting targets. Areas where erosion has reduced productivity most severely are not necessarily those

of greatest off-farm damage. Conversely, in some deep loess soils, erosion has exceeded T values for years with little productivity loss, while the downstream sedimentation may have been significant (*16*).

Progress is being made on research to measure the origin, extent, and costs of offsite damages. In New York, a model is being used to link productivity and offsite phenomena. SCS is involved in modeling both productivity and offsite phenomena in a study of the Tucannon River area in Washington. SCS is also giving offsite and environmental problems priority in the 1985 RCA analysis.

Give somewhat more attention to economic criteria in selecting targeted areas.

A selection process using technical and economic criteria and addressing productivity and offsite impacts of erosion would place heavy demands on data. Analytical procedures are probably adequate, but limited data probably prohibit involved analyses. Meanwhile, partial analyses can help. Walker, for example, recently outlined concepts involved in combining physical and economic criteria and provided a conservation benefit function that incorporates erosion-induced yield declines with an application to minimum tillage (*18*).

The agencies can bring economic considerations into use in other partial but useful ways. Considering data such as total and per acre value of agricultural production involves the use of economic concepts. So do analyses identifying areas that should be put under permanent cover, rather than protected for crop production. Cost-effectiveness criteria are useful. Examples are those of ASCS which put major emphasis on reducing the cost of saving a ton of soil. More complete application of economic criteria would focus attention on making most effective use of public funds in maintaining productivity and environmental quality. Agencies could consider converting all erosion impacts to discounted dollars where possible. Using lower than current interest would be appropriate in considering long-term impacts of erosion control investments.

Processes Used

ASCS became involved in selecting targeted areas for 1983 and beyond. The process starts with proposals submitted from the field. The submissions follow criteria, procedures, and deadlines outlined by the SCS and ASCS national offices.

Inspiration for submitting proposals comes from various sources: sometimes from the DC, sometimes the area conservationist, sometimes the SCD board or other local farmer groups. SCS most often takes the lead in developing the first draft proposals. As the program progressed, the CEDs and other ASCS personnel were increasingly involved in putting proposals together. The county boards and committees and other local groups are sometimes involved in preparing and in helping sell the proposals. Drafts are submitted to the state offices for reaction, further input, approval, and forwarding to the national offices. If a state submits more than one proposal in any year, the state staffs are required to indicate the state priorities for selection.

At the national level, SCS and ASCS staffs jointly screen the proposals and make recommendations to the Secretary of Agriculture for areas to be targeted. Submission and screening of proposals, and funding of targeted areas, are tied to the federal budget cycle.

While the areas targeted for ASCS cost-sharing generally coincide with those targeted for CTA by SCS, there are some differences. In particular, there are some areas targeted for cost-sharing but not for CTA. ASCS did not target some counties targeted by SCS partly because of budget limitations and partly because the practices needed for erosion control in some counties are not of the enduring nature that ASCS considers most relevant for targeted cost-sharing. ASCS sometimes targets areas 1 year later than SCS in order to provide time for SCS to start conservation planning and other activities in the new targeted areas.

Decisions on Number of Areas Targeted

About 3,000 U.S. counties have some agricultural production. As it continued its analysis of resource data and its planning for targeted programs, SCS made various projections regarding the numbers of counties and areas with resource problems severe enough for targeting. The numbers changed with

changes in criteria used in selecting targeted areas, anticipated budget problems, and other factors.

At one stage in its planning, SCS projected the targeting of 1,800 counties by 1987. Partly because of anticipated budget problems and partly through fear that large numbers of targeted counties would dilute the effort, SCS gradually cut back on the projected numbers of targeted counties. It planned to hold the number of counties targeted in bounds by identifying counties with the most critical erosion problems to add to the program each year and by phasing out completed and/or inactive areas.

In its targeted plan dated April 1983, SCS identified 1,526 counties that could qualify for targeting for cropland erosion control under its new criteria. It pointed out that critical resource problems existed in 1,817 counties. SCS concluded, however, that CTA funding would permit targeting of a maximum of 1,500 counties at one time. By the time it published its target plan in February 1984, SCS said that although critical resource problems exist in parts of 2,250 counties, it expected that CTA targeting would reach no more than 1,200 counties at one time.

The number of counties targeted for technical assistance for cropland erosion control grew from 132 in 1981-82 to 336 in 1983 and 636 in 1984; the number targeted for all purposes grew from 206 to 492 to 808 in the same period (see app. table 1 and figs. 2-4). Cropland acres within the areas SCS targeted for cropland erosion control increased from 15 percent of the Nation's cropland eroding at over T values in 1981-82 to 38 percent in 1984.

USDA probably targeted too many areas, given the resources it could allocate to targeting.

A number of factors led to increases in the number of targeted states and counties: resource data that indicated additional areas would benefit from targeting, change in selection criteria (especially adding nontechnical criteria such as local interest and support), and pressures from state and county clientele and key Members of Congress.

By 1984, 39 states had areas targeted for cropland erosion control. SCS cut back on its plans several times. Still, revised plans called for targeting about 50 percent of the cropland eroding above T values, or about 25 percent of all cropland acres in the country.

A number of national observers, as well as state and county agency personnel we interviewed, expressed concern that USDA spread targeting so widely the effort became diluted. Frequent comments were that the program had spread too far too fast; targeting was being watered down; when you get so many areas targeted, you defeat the purpose of targeting; and at that point, it would be just as well to give the states whatever funds you can and let them take it from there.

These comments point to two undesirable consequences of targeting a large number of areas. One is that resources may be spread too thinly for an effective accelerated program. The second consequence is that the program may target areas that do not have really critical erosion problems. The selection criteria and processes used assured that areas would not be targeted unless they had fairly serious erosion problems. But, areas targeted later apparently had less critical erosion problems than those targeted earlier. Several state SCS staff told us they would continue to fight for more targeted areas, but that present targeted areas already addressed the serious erosion problems in their states and any future areas would have less severe problems. Some cited areas that had been targeted that really did not have severe erosion problems (always in other states). Some expressed concern that second, third, and fourth priority areas would be targeted if the problem continued to expand.

A number of interviewed state and county SCS and ASCS agency personnel said targeting could be improved the most by keeping politics out of it. Apparently seized by a burst of realism, one state SCS staff person added: "But, of course, you can't." This judgment is corroborated by the relationship between counties targeted and the home districts of key Members of Congress. SCS administrators acknowledge they bent to some pressures, with the pragmatic goal of gaining and maintaining support for a policy to which they were deeply committed. Protasel has pointed out that SCS faced the dilemma and political pressures faced by all agencies at-

tempting to implement programs in the federal system: the pressures to spread funds widely throughout the decentralized and fragmented delivery system (*9*). Some apparently anticipated that such pressures would develop. In the public input on the NCP, one participant commented: "Although targeting federal assistance to critical problem areas sounds good in theory, it may not work well in practice. The concept contains the inherent danger of 'pork barrelling,' with assistance targeted based on connections of local politicians, rather than on critical need." One Washington, D.C. observer commented: "Given the political facts of life, it was inevitable and predictable that the USDA would target too many counties."

Whether the agencies targeted too many areas requires additional evidence related to amount of resources available in targeted areas. Such information is presented in the following subsection.

Funding for Targeting and Its Effect on Nontargeted Areas

This section reviews the process by which budgetary support was obtained and allocated to the targeted areas. It has special reference to the effect of funding on nontargeted areas.

ASCS

ASCS did not receive any new money for targeting. The agency allocated $9 million to the program in 1982 and 10 percent of its ACP budget which was $19 million for each of 1983 and 1984 (see overall funding in table 4). The agency redirected funds to targeting by withholding funds from its allocations to states, some of which came from its base ACP funds for cost-sharing and some from special project funds. The House Appropriations Committee encourged ASCS to request funds for targeting in addition to the base program, but the agency did not receive necessary executive branch approvals.

ASCS had planned to target 15 percent of its ACP budget in 1984. However, the House Appropriations Committee voted to keep targeted ACP funds in 1984 at the 10-percent level reached in 1983, or $19 million. The executive budget request for 1985 contained $80 million for ACP, the Water Bank Program, FIP (Forestry Incentive Program), and emergency conservation programs. If the appropriation had been at that level, ASCS said it would have had no alternative but to discontinue targeting. Congress appropriated $190 million for the ACP program, and retained the cap on the amount that could be targeted at the $19-million level. ASCS made the same targeted fund allocation to states as in 1984, and sent out a notice that the states could make minor adjustments in the program in consultation with their SCS counterparts.

SCS

SCS started the targeting program in 1981 using $4 million of the $10 million of new discretionary funding added to its CTA budget by the Senate Appropriations Committee. For FY 1982 and beyond, the agency budget documented requests for targeting separate from its ongoing CTA program. For 1982, the agency received $6.6 million of the $10 million it requested for targeting, and used this amount for its national targeting program. The funds used for targeting were clearly monies appropriated for targeting, or "new money." For 1983, the agency used $12.5 million of its CTA budget for targeted programs; part of this $12.5 million was new money appropriated for targeting and the rest were redirected funds (table 2).

SCS plans for 1984 called for 10 percent of the CTA budget, or $27.5 million, to be allocated to targeting, an increase of $15 million from the 1983 level. The 1984 budget request called for $10 million of the increase for targeting to come from new money; $5 million was to be redirected to

Table 2—Conservation technical assistance (CTA) funding, 1980-85

Year	Total CTA appropriation	CTA funds allocated to states		
		Targeted	Nontargeted	Total
	Millions of dollars			
1980	206.4	[1]	190.6	190.6
1981	234.0	4.0	212,0	216.0
1982	241.2	6.6	213.4	220.0
1983	251.4	12.5	217.0	229.5
1984	275.0	27.5	220.7	247.7
1985	276.0	27.0	223.1	250.1

[1]No targeting funds in 1980.
Source: Reports from SCS, USDA.

targeting from base programs. As a result of action in the House Appropriations Committee, $5 million was added to SCS's CTA appropriation.

In line with the NCP, SCS planned to budget 15 percent of its CTA budget, or about $40 million, for targeting in 1985. This would have been a $12.5-million increase from the 1984 level. SCS requested this amount as an increase in its budget. OMB indicated that the agency should redirect $12.5 million from its base CTA programs in order to provide funds for the planned increase in targeting. Further, as part of the governmentwide effort to reduce spending, the 1985 executive budget request called for a decrease of 2 percent, or about $5 million, in CTA base programs. As a result of action in the House Appropriations Committee, SCS was constrained to targeting no more of its CTA budget in 1985 than it had in 1984, namely $27.5 million. The Committee added $5.6 million to the CTA budget to cover the federal pay raise. Faced with the constraint on targeting, SCS decided not to target any new areas that had been proposed for 1985, and to allocate the targeted funds among the states in the same amounts as in 1985. States were permitted to adjust boundaries of existing targeted areas for 1985 in agreement with ASCS, SCDs, and local groups.

Role of the National Formula

SCS began allocating CTA funds to the state conservationists' offices in the early 1940s. Allowances were based on historical factors such as number of organized conservation districts, acres of nonfederal land, and number of farms. The previous year's allowance eventually became the base for the current year's allowance. This system, with minor adjustments, continued for 40 years. Then, SCS program leaders and others perceived changes were needed because the system for allocating funds did not reflect differences in resource problems among the states or changes in resource conditions. So, during 1981 and 1982, SCS developed a formula for allocating funds to the states. The formula was designed to give greater weight to resource problems and needs. However, to cushion the shock of change and to achieve a somewhat smoother transition from the previous process to the new formula, 50 percent of the weight in the formula was given to four historical factors (number of conservation districts, number of farms, rural population, and nonfederal land area). The other 50 percent of the weight was given to eight factors representing resource problems (such as acres of land in various erosion categories).

The formula was first used in making allocations for 1983. Since then, the SCS national office has used a revised version of the formula to make annual allocations to CTA funds to the state offices, with the allocations made up of base funds according to the formula, targeted funds, special projects such as watershed program, and an allowance for inflation where appropriate.

Questions were soon raised as to whether state allocations under targeting and the formula would tend to offset each other. SCS administrators argued that the two were mostly independent. Targeting was for the purpose of correcting a specific resource problem, so the increased assistance available through targeting was not supposed to become a part of the base. They pointed out that in some states the formula and targeting might offset each other. But, in other cases, they would reinforce each other, depending on the circumstances. As a practical matter, SCS did consider the effect of the formula on base funds in allocating targeted funds to states. The agency considered it easier to add targeted funds in a state that was steady or declining in base funds, and allocated less targeted funds to states whose base funds were increasing under the formula. SCS administrators believed that, with the combination of allocations under the formula and targeting, each state would get its fair share of the CTA resources based importantly on National Resource Inventory (NRI) data.

The original plan was to use the formula to shift 5 percent of the CTA resources to states with more critical erosion problems over a 5-year period. However, this plan was stretched out so the 5-percent change in allocations would be phased in incrementally over a 10-year period. The revised formula to be used in 1984 and subsequent years called for a shift of a total of 450 staff years among states over a 10-year period, or 45 per year. Operation of the formula would redistribute CTA funds

incrementally from the Southeast and Northeast to the Midwest and West. States in the South were scheduled for larger cuts because their budgets were historically high. The high budgets were based on the large number of conservation districts, large number of farms, and the influence on the allocation process by key Members of Congress from that region. How states reacted to the formula depended on how they fared under it.

Cook points out that, under the formula, the 45 staff years to be reallocated annually amounted to only about one-half percent per year, and the shifts would be sparsely sprinkled over 20 states. He applauds SCS management for trying to make a change, but asks whether it is worth the trouble when it results in such trivial change (*5*). Congress, however, decided the change was not trivial. In the 1985 appropriations bill, it stopped any further redirection under the formula by freezing the distribution of base CTA funds among states at the 1984 level.

State Allocations Reflect the Formula and Targeting

The National Association of Conservation Districts (NACD) and others repeatedly questioned whether SCS redirected funds from its base CTA program ("eroded the base") in order to provide the funds for targeting. Some indicated they would support targeting only if it were done with "new money." SCS administrators pointed out, through specific budget documentation that stressed critical resource problems in geographic areas, that they had obtained increases in the CTA budget not possible without targeting; they received increases in the CTA budget while other agencies were experiencing reductions; while there had been an increase of $27 million in targeting from 1980 to 1984, there had been a $68-million increase in CTA appropriations; and thus targeting had not been done at the expense of other programs.

Table 2 indicates that SCS did get continued increases in the CTA budget from 1980 to 1985, more than enough to cover targeting. The amount of nontargeted funds allocated to states increased each year from 1980 through 1985. The chief staff person for the House Appropriations Subcommittee on Agriculture told us that, although the Committee members were not opposed to targeting, their real motivation in adding funds to the CTA budget for 1984 was to restore the base program. He also expressed the belief that if the administration had requested more new funds for targeting, they probably would have been appropriated.

But there are two additional facets to the analysis: inflation and personnel ceilings. States and other operating units must cover pay increases and other inflationary increases in costs from their budget. While salary increases and rates of inflation during the early 1980s have been low compared with some periods, the cumulative decline in the power of the dollar to carry out conservation programs has still been large. After remaining relatively stable at around 15,000 from 1975 to 1980, SCS staff dropped by more than 1,000 from 1980 to 1983, partly because of the decline in purchasing power, but largely because of lowering of the agency personnel ceiling.

Effects of Targeting on Nontargeted Areas

Consideration of cost increases and personnel ceilings directly confronts the question of the impact of targeting on base programs, or the effect on nontargeted areas. We obtained data on changes in CTA staff years in targeted and nontargeted areas (table 3). We took 1980 as the base year, since it was the last full year in which allocations could not be affected by targeting, and 1983, the last year for which data were available, as the terminal year. Then we tracked each U.S. county from before targeting to see how staff years changed after targeting.

There was a national reduction of 10 percent, or 785 staff years, devoted to CTA in the counties from 1980 to 1983. There was a 27-percent increase in staff time in areas targeted for cropland erosion control in 1981, and a 4-percent increase in staff time in areas targeted for cropland erosion in 1983. Other areas targeted for various purposes and combinations of purposes from 1981 to 1983 had a 9-percent decline in staff years, indicating that decreases in base allocations in the areas offset in-

creases received under targeting. Most of the staff years were in areas not targeted; these areas experienced a 14-percent decline in staffing. All areas targeted had 20 percent of the staff years prior to targeting in 1980; by 1983, these areas had 23 percent of the total CTA staff time.

Essentially all state SCS offices had to make personnel cuts. Those who had targeted areas in their states (which was most of them) faced a dilemma. On the one hand, they had a mandate (and mostly a personal commitment) to accelerate the program in the designated target areas. On the other hand, they were also concerned about maintaining the program in nontargeted areas. While the exact outcome varied among states, all did the best they could to balance the relative needs of the targeted and nontargeted areas. They were instructed to use all of the targeted resources in targeted areas. We presume they did. Many of them followed the approach of making most of their cuts in nontargeted areas, but also making smaller cuts in base allocations to targeted areas. Some areas that were targeted ended up with little or no net increase in staff by 1983. This led to complaints from agency personnel in targeted counties and from SCD boards and others. So, the state offices had to tell them repeatedly: "Yes, we know, but if it hadn't been for targeting, you would have had even less than that."

Table 3—SCS staff time devoted to conservation technical assistance by targeting status, U.S. totals, 1980, 1983 and change[1]

Targeting status	Staff years 1980	Staff years 1983	Change, 1980 to 1983	
	----*Number*----			*Pct.*
Targeted for cropland erosion in 1981	426	543	117	27
Targeted for cropland erosion in 1983	672	697	25	4
Other targeted[2]	433	393	¹40	¹9
Subtotal, targeted	1,531	1,633	102	7
Not targeted	6,313	5,426	¹887	¹14
Total	7,844	7,059	¹785	¹10
	Percent			
Percentage of staff time in areas targeted	20	23		

[1]Staff years associated with four project codes were included in the analysis: technical assistance, Great Plains Conservation Program, watershed project operations and Resource Conservation and Development (RC&D) program assistance. Others, such as river basin surveys, snow surveys, and plant materials centers were excluded. The criterion for selection was whether the activity was intended to provide technical assistance directly to farmers/landowners. For each targeting status, the national totals were obtained by aggregating the CTA staff time in every U.S. county that fell into that category. The 1980 column shows staff time in each category prior to targeting; the 1983 column shows the amount after targeting.

[2]Includes targeting for water conservation, rangeland erosion, and various combinations, including combinations with cropland erosion, 1981-82 and 1983.

Source: SCS National Reporting System.

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SCS tried to obtain "new money" for targeting in order to protect base programs and to maintain support for targeting, but many of the targeted funds had to come from redirection.

SCS was sensitive to the needs of nontargeted areas. The NCP published in 1982 specified: "It will. . .preserve a base program of assistance to farmers, ranchers and others in solving a wide variety of resource conservation problems" (*13*). The public participation phase of the RCA process revealed concern for the fate of nontargeted areas, with arguments that targeting would penalize areas that have successful programs because they would receive less assistance. SCS's national targeting plan in 1983 expressed continued concern: "Public acceptance of targeting will be determined by the extent to which the CTA program in the nontargeted counties is disrupted to provide resources for additional targeting."

As hard as SCS tried, however, it was able to get only a modest amount of the budget needed for targeting from new earmarked appropriations. Most of the funds had to come by redirecting funds from base CTA programs. This resulted primarily from overall decline in real budgets and cuts in personnel ceilings.

Targeting did shift SCS staff time toward targeted areas and away from nontargeted areas. However, only about 12 percent of the decrease in nontargeted areas from 1980 to 1983 was due to targeting, while 88 percent was due to declines in real budgets and cuts in personnel ceilings.

Some argued that with the joint operation of the targeting and the formula, SCS administrators were

only playing games and just trying to make it look like they had targeted. Others criticized the agency for targeting only 25 percent of its CTA budget and maintaining "business as usual" with the remaining 75 percent.

There was an increase of 102 SCS staff years or 27 percent from 1980 to 1983 in counties targeted in 1980 for cropland erosion control and a decrease of 887 staff years or 14 percent in nontargeted areas (table 3). At first glance, this looks like a dramatic difference. But, of the decline of 887, only 12 percent is accounted for by the 102-staff-year increases in targeted areas. The remaining 88 percent resulted from declines in real budgets and personnel ceilings. Also, some of the shifts between targeted and nontargeted areas would have come about through actions in state conservationists' offices without targeting, since many state offices were increasingly allocating positions to counties on the basis of severity of erosion problems.

The net effect of targeting was to make a modest shift in the relative proportion of the SCS staff in targeted, compared with nontargeted, areas. This would have caused much fewer problems if it had occurred while budgets and personnel ceilings were rising. But, if targeting had done what it was intended to do, the *proportion* of staff in targeted areas would have increased (as it did, from 20 to 23 percent) even though the *number* in nontargeted areas may not have decreased. The SCS and ASCS offices universally expressed concern for nontargeted areas and the need to have enough conservation resources in all areas to address important resource problems and to maintain practices, interest, and morale.

While essentially every county in the country has some erosion or water problems, those problems in areas not targeted are, we presume, less severe. Most of the state offices said they would take care of these problems through their base programs. The state staffs acknowledged that every county should not and could not be targeted. Most of them said they would have to make hard decisions and allocate resources to counties on the basis of data showing severity of the resource problems. Most also concluded that they should and would maintain a conservation delivery system in every county, although some SCS staff believed that one DC could manage the SCS program in several counties.

Allocating Resources to Targeted Areas

Targeting became a part of a flow of resources, activities, and progress in controlling erosion already underway and expected to continue after targeting ended. Thus, managers needed to consider not only the amount of additional personnel and funds to allocate to targeted areas, but also the timing, rate of flow of additional resources, and the length of time the flow is sustained. This subsection covers criteria and processes used in allocating funds to targeting from both national and state levels, the relative amount of additional resources under targeting, staff appraisal of the adequacy of resources, acceleration and deceleration of targeted programs, and brief comments on terminating programs.

Criteria and Processes for Allocating Funds

In allocating targeted funds to the states, SCS gave greatest weight to the extent of the targeted resource problem (seriousness of the erosion problem in the case of targeting for erosion control). Two other factors considered were the amount of technical assistance staff needed to address the problem in relation to the staff already available, and staffing needs of the area relative to the needs of other targeted areas. SCS also tried to achieve a balance between shoring up ongoing targeted areas and bringing in new areas. Two longer term considerations were involved in SCS's allocation. First, the agency tried not to build up resources in targeted areas to a level seriously susceptible to RIF (bureaucratese for *r*eductions *in f*orce) when the targeting program was phased out. Second, targeted progress was monitored and annual adjustments made in targeted funding levels on the basis of program accomplishments.

ASCS allocated targeted funds to the state offices on the basis of a ratio between the total allocation and amounts actually paid to farmers in the targeted counties during the previous year for prac-

tices eligible for cost-sharing under targeting. State allocations were sometimes adjusted by the amount of unobligated targeted funds the states carried over from the previous year.

In making allocations of targeted funds to the states, SCS and ASCS attempted to coordinate their allocations to achieve the best balance within the budget constraints of both agencies. There was no set pattern; the combinations of technical and financial assistance varied widely.

Both SCS and ASCS national offices permitted state offices discretion in allocating targeted resources among counties in the targeted area.

Most state SCS offices used staffing workload analyses in allocating positions funded with targeting resources. Severity of erosion problems was given heavy weight, but some weight was also given to historical factors such as number of farms. By 1984, some states started to use the formula developed for use at the national level in allocating resources to counties. After the program had been in operation for a time, program effectiveness was added as a factor in many cases. In most cases, additional staff were divided fairly uniformly among the targeted counties. But there was a great range in the number of additional positions allocated to individual counties, especially where staff stressed seriousness of erosion problems in allocating targeted resources.

Most state ASCS offices heavily emphasized the counties' historical abilities to obligate ACP funds. However, a number of them also considered data on severity of the erosion problem. In several cases, the state office considered the extent to which the county committees pushed LTAs or specific conservation practices in making allocations to the counties. Almost without exception, allocations varied widely among counties. Some counties in the targeted areas received no targeted funds.

Amount of Conservation Resources Available in Targeted Areas

In 1980, the average number of staff years in counties SCS later targeted for technical assistance was about 2.15. The average in counties not to be targeted was 1.90, or a difference of about one-fourth staff year. This difference implies that the state conservationists had already put more staff where the resource problems were the greatest. While there was wide variation, SCS placed an average of about 1.1 additional staff years of technical assistance into the counties targeted for erosion control. This amounted to an average increase of a little over 50 percent.

The average increase in SCS resources in the eight study counties was 48 percent, suggesting they were typical in terms of acceleration under targeting. We were not able to obtain nationwide data on acceleration in cost-share funds in targeted counties. The increase compared with 1980 in the eight study counties was 56 percent (see appendix table 3 for data on targeted cost-share and CTA resources).

SCS and ASCS Staff Appraisals of the Adequacy of Resources Under Targeting

In mid-1984, we asked county and state SCS and ASCS staffs how the amount of resources available under targeting compared with the need or the amount they could have used efficiently.

Responses were in terms of how much, if any, additional resources were needed. A number of SCS and ASCS staff specified that their estimates represented the additional resources needed for a limited period of time to get the most critical erosion problems under control (some defined this as getting the conservation treatment needed on 60 to 75 percent of the cropland with erosion over T values). Such responses were in the spirit of the targeting concept.

SCS personnel often indicated the amount of additional technical assistance they needed depended on the amount of cost-share funds available, whether they could obtain experienced personnel, and their having time to gear up for an expanded program.

ASCS personnel stressed that the amount of additional cost-sharing funds they could use effectively depended on the farm income situation, weather conditions, whether contractors were available,

whether SCS could keep up on the referral work, and if they knew early in the fiscal year how much cost-share funds they would have.

DCs overwhelmingly and emphatically said they needed more staff than they received under targeting. State staffs agreed. The state SCS staffs in several states said they had received only enough acceleration under targeting to scratch the surface on controlling erosion in the targeted areas.

Increased Missouri ASCS cost-sharing funds available under targeting had combined with the new state cost-sharing program, in total making a large amount of cost-sharing funds available to farmers in the Green Hills area. Then, weather conditions and low farm incomes during 1981-83 made it difficult to apply erosion control practices. As a result, some county ASCS offices had more cost-share funds than they could use effectively. CEDs in both counties in Washington and in Haywood believed they had received all of the increase in cost-sharing funds they could use effectively. Other CEDs and state ASCS staffs believed they could have used considerably more cost-share funds. The Alabama ASCS staff was convinced the amount of additional cost-share funds for the south Alabama targeted area was so small and they had to spread it so thin that the funds had relatively little effect on erosion.

State and county SCS and ASCS personnel most often mentioned increased funds as the change most needed to improve targeting. Many said the best approach under targeting would be to put an adequate amount of resources into a more limited number of counties, to really do a job in those areas, then move on to other areas. National program administrators acknowledged that most areas were cut back from the amount they requested in their proposals, some of them drastically.

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Additional resources under targeting permitted some counties to reach a minimum critical mass.

Many DCs said their staffs were spread too thinly to have really effective programs prior to the targeting program. Targeting aimed to not only accelerate conservation treatment in critical erosion areas, but also to improve effectiveness in the use of resources. This required putting enough resources into an area to reach at least a minimum critical mass for carrying out an accelerated program. These goals were met in a number of targeted counties; the marginal additional resources added leverage and effectiveness to the program of both SCS and ASCS. With offices, support staff, and other overhead inputs already in place under the ongoing programs, the additional resources under targeting appear to have resulted in more than proportional increases in accomplishment.

Most targeted areas should receive acceleration of both technical and financial assistance, with increased technical assistance preceding increased cost-sharing.

Increased cost-sharing may not always be needed as a part of targeted programs. For example, practices most needed for erosion control in an area may not be eligible for cost-sharing. In most cases, however, both technical and financial assistance are needed for effective conservation programs. Some farmers will not be able to carry out conservation programs without financial assistance. Having additional cost-share funds as well as additional technical assistance will provide motivation to both farmers and to conservation agency personnel. Most DCs in the study counties said that having additional cost-share funds was the factor contributing most to progress under targeting. The optimum mix between technical and financial assistance will vary among areas depending on the status of conservation efforts at the start of targeting, farmers' abilities to finance erosion control investments, practices that are relevant to control erosion, and other factors. If the targeting program stresses LTAs or variable cost-sharing, relatively more SCS staff time will be needed to handle the workload connected with them.

One might imagine that a better interagency program would result from both SCS and ASCS targeting areas at the same time, rather than ASCS entering 1 year after SCS, as was done in the first 10 states targeted for cropland erosion control. However, there was strong concurrence between ASCS and SCS program managers at all levels that SCS needs to carry out information programs to

create awareness and work on conservation planning for 1 to 1½ years before additional ASCS cost-sharing funds are needed.

Acceleration and Deceleration of Targeted Programs

National program managers gave some thought to the length of time areas should be targeted in planning the flow of additional resources into targeted areas, but did not develop firm time-phased plans. National SCS targeting plans indicated that targeting would be phased out as erosion problems were reduced to less critical levels in some targeted counties. The plan published in 1983 suggested some areas might be phased out in 1986 or 1987, implying a targeted life of 5 to 6 years. With some variation, the same amount of targeted resources were budgeted for each year an area was expected to be targeted.

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Program managers underestimated the startup time needed, and as a result, acceleration was too fast during the first 2 years of targeting.

For areas targeted by SCS in 1981, much of the detailed planning was done after targeted resources were allocated. This may have been due to targeting having been launched on rather short notice. However, many of the areas targeted later also waited until targeting proposals were approved and funded before developing detailed implementation plans. Typical comments from state staffs about the approach used were: "We should have had less resources for the first couple of years while we worked out a plan and sequence for using the resources," and "It's too awesome to dump in all of the resources at once without advanced planning for it." A possible solution was suggested in this comment from an SCS state staff person: "There should be pre-program allocations, starting two years ahead of the time the area is to be targeted, to plan the start up. It is tough to be given more resources and be expected to produce results immediately."

Four of the 13 state SCS staffs interviewed indicated they had more resources than they could absorb the first years of the program, and several others indicated they had somewhat more than they could use effectively. One state ASCS office reported it had more cost-sharing funds than it could use effectively during the early phases of the program.

The time needed for startup depends importantly on whether new or experienced personnel are hired by SCS. Several states reported that, with primarily inexperienced personnel, it took 12 to 18 months before the new personnel were "production ready." Much of the existing staff time was needed for training. In several cases, program leaders said work accomplishments declined during the startup period. SCS personnel indicated it required 2 years to reach the stage where the program was ready for takeoff. A state staff in a typical targeted state said that, after the program had been in operation for 2½ years, they had increased farmers' awareness of the need for conservation, demonstrated what could be done, and gained acceptance for the conservation technology that was needed and that the big playoff from targeting would come during the next 4 to 5 years of the program.

Much more acceleration was needed than provided after the second year.

Almost all of the state staffs said they could have used much more resources — twice the amount according to many — than they had in the third and fourth years of the program. One state SCS staff person said that the optimum flow of new resources into the targeted program in their state would have been as follows: first year, $100,000; second year, $200,000; third year, $400,000; fourth and subsequent years until the beginning of phaseout, $750,000.

Deceleration followed so soon after acceleration in some areas there was little opportunity to see what targeting could do.

The number of additional staff under targeting was probably sufficient to have some effect if they had been left in place long enough. However, the additional resources were removed so soon that the program did not have a real opportunity to show what it could do. Because of budget and personnel con-

straints, SCS staffs in some targeted areas were reduced to about their pretarget levels within 1½ to 2 years after targeting began. Where this occurred, state SCS offices usually left most of the new targeted personnel in the counties, reduced the base allocations of staff to targeted areas, and reduced staff allocations to nontargeted areas more than in targeted areas. Targeting often prevented staff numbers from declining below pretargeting levels. But the reduction of personnel in targeted areas does not seem consistent with the objectives of targeting. Nor does it appear to be efficient use of resources, given the investments made in initiating the programs.

The SCS staff in one of the study counties had increased by one under targeting. But after 18 months, the number dropped to the original level (not untypical). When we asked the DC what his biggest satisfaction and his biggest disappointment were with the targeting program, his answers were immediate: "Getting a new employee" and "Losing him." He said targeting had created expectations they could no longer fulfill. As the program moved on, farmers became upset when they could not get help as soon as they wanted it; some complained to their representative in Congress. He concluded it might have been better not to have the additional staff position if they could only keep it for so short a time.

The length of time areas need to be targeted varies widely, but on average is longer than anticipated in the USDA targeting effort.

State SCS staffs emphasized there were wide variations among counties in the time needed for targeting to be effective. One state staff person said that some of their counties were all ready to go, while others didn't seem to know what the problem was. He indicated it was essential that SCS take this into account in determining the tenure of the program. Another state staff said that some of their counties would need to be targeted for only 3 to 4 years after the program started rolling; others would require 5 to 6 years; and one would need 10 years or longer.

Only a modest amount of progress in terms of saving in soil, increase in productivity, and improvement in environmental quality can be expected during the first 2 or 3 years of a targeted program. Much of it could show up around the fourth and fifth year, and some would not be evident until some years later.

Whereas program managers underestimated the length of time needed for startup, the time needed after the initial buildup may be less than they might have anticipated. There was considerable consensus among conservation agency personnel that the big payoff from targeting would come in the 3 to 5 years after the takeoff point had been reached. Our analysis suggests that most efficient use of resources in a typical agricultural area would be achieved if programs were continued 2 to 3 years after the initial buildup period.

Give much more attention to timing and rate of flow of resources into targeted areas.

Figure 5 suggests an acceleration-deceleration curve representing the optimum period of time and flow of targeting resources for a number of agriculture areas. The curve is based on the views of conservation professionals we interviewed, studies conducted by other social scientists, and our own judgment.

Programs with significant acceleration follow a curve that has a slow buildup, followed by a more rapid buildup of resources, then a leveling off, followed by deceleration and partial or complete phaseout.

In considering the optimum flow of resources into an area, two important phenomena need to be considered. One is the process that farmers go through in the adoption of conservation practices. Everett Rogers calls this the innovation-decision process, and outlines the five main steps in the process for any individual as knowledge, persuasion, decision, implementation, and confirmation. Further, individuals differ in their innovativeness; if an accelerated program is pursued long enough to move the majority of farmers, it must proceed much of the way through the five adopter categories outlined by Rogers, namely innovators, early adopters, early majority, late majority, and laggards (*10*). The second phenomenon relates to the field staff who operate the accelerated delivery system. Just as

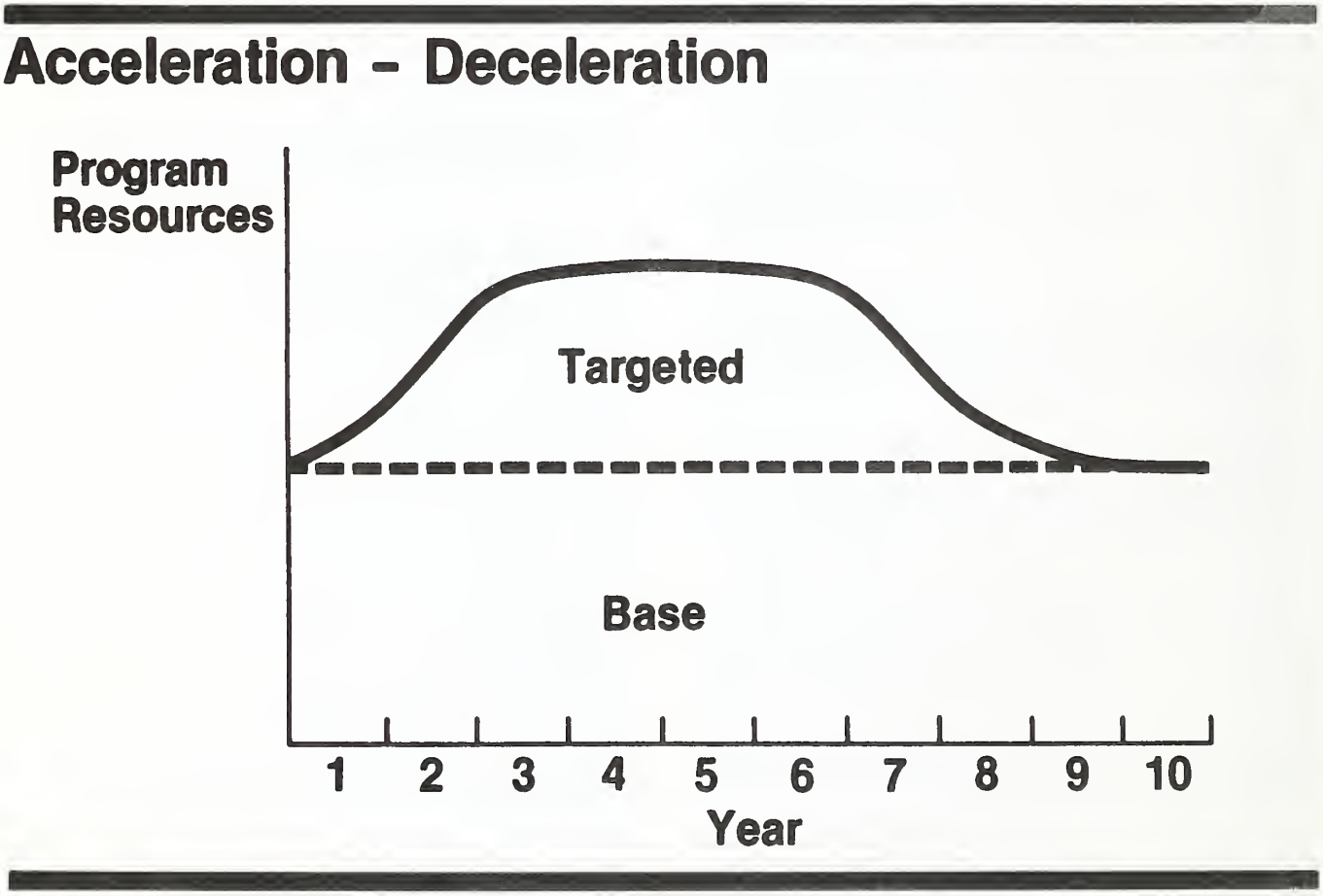
there is an adoption curve for farmers to accept recommended conservation practices, there is an adoption curve for conservation professionals to accept innovations or changes in the program. This curve is at least partly a learning curve. But also as a state SCS staff person emphasized: "You have to provide time for people to adjust their thinking. If you give old-time DCs two or three bright young staff, they have to adjust to becoming managers rather than workers, and to break up close ties they've had with some farmers they've worked with for many years."

Most important, the volume and timing of accelerated inputs need to take account of the interactions between the two sets of adoption curves: one for farmers and one for conservation professionals.

The initial startup period would require 1 to 2 years, depending primarily on how much advanced planning had been done before the programs were initiated and the level of experience of the SCS personnel. Little, if any, additional cost-sharing funds are needed during the first 1 to 1½ years of the accelerated program. Time is needed for farmers to become more aware of the need and potential of increased erosion control efforts and, in some cases, for SCS conservation planning.

The upper part of the curve would be the period of heaviest workload and the one during which most of the accomplishments would be achieved. The time needed for this crucial period depends most on the mix of adopters and the time it takes for them to move through the adoption process as described by Rogers. We believe 3 to 4 years will be the optimum amount of time for this period in many counties.

Figure 5



A phaseout period should follow the peak period at the center of the curve. Staff and other resources should probably be reduced gradually, say over a 2-year period. Plans for phasing out targeted programs should be announced early, ideally at the time the programs are approved.

Total duration for targeted programs of 7 to 8 years may be optimum for many counties. Our recommendations take account of the time needed for conservation professionals and farmers to respond. However, our recommendations are based largely on criteria of program effectiveness and efficiency in the use of conservation resources. But of course, program managers must deal with budget and personnel constraints and with political pressures to target new areas, to rotate funds to other areas, and to treat all areas uniformly.

Terminating Targeted Programs

Farmers will need assistance to carry out conservation plans they have developed under targeting, to maintain practices they have installed, and for other purposes. Adherence to the targeting concept and effective use of resources requires that the targeted programs be phased out and that the continued assistance be provided through the base program, in some cases augmented by local and state resources.

Targeting may not be the right solution for all critical erosion areas, and some programs may need to be terminated.

SCS and ASCS need to carefully monitor progress in targeted areas, as they have been doing. The agencies face a dilemma in areas where little has happened after accelerated programs have been underway for 3 or 4 years because of farmers' unwillingness or inability to change practices, or for other reasons. Good results might be anticipated in some cases if the program is continued, perhaps using different approaches or different personnel. In other cases, where the outlook does not appear to be bright, the agencies may find it necessary to abandon programs rather than waste additional resources. Targeting may not be the right tool to deal with critical resource problems in all areas.

SCS and ASCS should give high priority to developing plans for terminating targeted programs.

National SCS program managers indicated that they did not want to increase staff so much that RIFing became necessary when targeting ended. They said that the program would not be ended abruptly in an area. As of late 1984, there was no evidence that the agencies had developed contingency plans to phase out targeting programs in a logical, cost-effective manner.

State and county personnel said that one of the most bothersome things about targeting, and one that made it extremely difficult to plan, was that they did not know how long they would be targeted nor how many targeted resources they would have from year to year. Such information is difficult for national program managers to provide, especially in light of the erratic federal budgeting process. However, it is now urgent that the agencies develop more specific plans for phasing out targeted programs. The plans need to take into account what happens to staff after targeting has been terminated in an area.

IV. Some Effects of Targeting

Other important effects of targeting are covered in other reports associated with this targeting research project. Here we address intermediate outcomes of targeting, namely farmers' participation in the delivery system, staff perceptions of program accomplishments, other evidence of the impact of targeting on the delivery system in targeted areas, funding for targeting with special reference to its effect on nontargeted areas, and attitudes toward targeting.

Farmers' Participation in The Conservation Delivery System

Since the targeted programs were merged with and became inseparable from the base programs, we concentrated attention on farmers' participation during the study period 1981 to 1983, and on changes to see if targeting resulted in increased participation. We also obtained information on farmers' knowledge of the targeting program and their perceptions of help they received specifically because of the targeting effort. We analyzed factors associated with participation to obtain insights on the characteristics of the more active participants. Participation data were also used in another report to determine the extent to which participation in the conservation delivery system leads to the adoption of erosion control practices.

Data in this section are based on the surveys of 709 farm operators and information provided by the DCs and CEDs. Some of the items represent farmers' perceptions, which may be different from the actual situation. These perceptions or feelings, however, influence their use of technical and financial assistance and may be important in program implementation. More data on farmers' participation in the conservation delivery system are presented in the Basebook of this project.

What Farmers Told Us About Their Use of Technical and Financial Assistance

As shown in the following tabulation, 48 percent of the farmers in our sample received technical help from SCS and 40 percent received cost-sharing assistance from ASCS during 1981-83:[4]

Type of assistance	Alabama		Missouri		Tennessee		Washington		Average
	Barbour	Henry	Daviess	Harrison	Dyer	Haywood	Columbia	Walla Walla	
	Percent of farmers								
Technical help	48	52	39	40	40	60	49	53	48
Cost-share funds	53	29	28	20	35	52	45	57	40

There was relatively little difference between counties within states on use of technical help, but significant differences in the case of cost-sharing funds. Fewer farmers reported receiving either technical or financial assistance in Missouri than in the other three states. This difference is likely because of either of two factors: farmers in Missouri may have needed less help because of their long history of cooperation in conservation programs, or because of weather conditions which made it difficult for many to apply practices during the study period.

In Alabama, Missouri, and Tennessee, farmers most often used technical assistance to apply terraces and water control structures. In Washington, they most often reported receiving help on divided slope farming, a modified form of stripcropping used by farmers in the Palouse area in which they farm in two or more parallel strips across the general slope of the land which may not be exactly on the contour. In Washington, divided slope farming was followed closely by conservation tillage as the practice on which farmers reported receiving help from SCS. Only one or two farmers in each of the other states said they received help from SCS on conservation tillage, perhaps because information on these practices came from such a wide diffusion of sources that it was difficult for farmers to identify SCS as a special source of information on it.

[4]Greater detail, including statistical tests of differences among states and between counties within states is given in appendix tables 4 and 5. On the farm survey, we asked farmers whether they had received help from SCS in 1981-83 since the CTA program was targeted in 1981, and whether they received cost-share funds in 1982-83 since cost-share funds were first targeted in 1982. Later we discovered in our interviews with DCs and CEDs that if SCS worked with a farmer starting in the spring of 1981 under the targeting program, it would have been possible for that farmer to apply for and receive increased cost-sharing to cover the entire 1981-83 period, which is parallel to our analysis of SCS. The information we report here and in appendix table 5 relates to the percentage of farmers who received cost-share funds anytime during 1981-83 as shown by ASCS records.

When asked how they got in contact with SCS to get help, 75 percent of the farmers who received help from SCS said they took the initiative and contacted SCS. Eighty percent said they took the initiative and contacted ASCS to get cost-sharing assistance. As shown below, 10 percent said they received help from SCS by being contacted by SCS; 26 percent gave this response in Walla Walla county, where "knocking on doors" was a feature of the targeting effort:

Method of contact	Alabama		Missouri					
	Barbour	Henry	Daviess	Harrison				
	Percent of farmers							
Contacted by SCS to get SCS help	10	7	6	9				
Referred by ASCS to get SCS help	10	28	9	6				
Referred by SCS to get ASCS cost-share	20	17	9	12				
	Tennessee		Washington					
	Dyer	Haywood	Columbia	Walla Walla	Average			
	Percent of farmers							
Contacted by SCS to get SCS help	11	2	9	26	10			
Referred by ASCS to get SCS help	17	26	7	14	11			
Referred by SCS to get ASCS cost-share	11	21	26	33	20			

A detailed analysis of 1983 participation indicated that office and farm visits were the SCS activities in which farmers participated most often, with the frequency of farm visits highest in Washington and lowest in Missouri. Other forms of participation were also higher in Washington than any of the other three states. Eighteen percent of the farmers in Washington and 12 percent in Tennessee said they attended one or more meetings, tours, or field days outside their counties. (Information on farm visits, office visits, meetings, tours, and field days in the county is in appendix tables 6-8; data on meetings, tours, and field days outside the county and visits to conservation demonstration farms are in the Basebook of this project.)

Thirty percent of the farmers in the sample said they had conservation farm plans that SCS helped prepare, with larger percentages in Alabama and Washington than in Missouri or Tennessee (see below and appendix tables 9-11):

Plan status	Alabama		Missouri					
	Barbour	Henry	Daviess	Harrison				
	Percent of farmers							
Have a farm plan	31	44	32	11				
Plan was prepared 1981-83	46	23	31	20				
Have a complete plan	63	82	67	40				
	Tennessee		Washington					
	Dyer	Haywood	Columbia	Walla Walla	Average			
	Percent of farmers							
Have a farm plan	18	32	41	33	30			
Plan was prepared 1981-83	66	53	12	16	31			
Have a complete plan	75	46	78	57	66			

Tennessee emphasis on farm plans showed up dramatically in the large percentage of farmers there who said their plans had been developed in 1981-83. The focus on LTAs in the targeting program in Barbour county also was revealed in the

nearly half of the farmers there who said their plans were developed between 1981 and 1983. The smaller percentage of farmers with farm plans who had complete plans in Harrison, Haywood, Walla Walla, and Barbour counties is likely attributable to the newer emphasis on partial plans in those counties.

Of the farmers who reported receiving cost-sharing assistance, about one-fourth said they received them under a mini-LTA (see below and app. table 12). The higher percentage in Barbour is consistent with strong emphasis there on LTAs under the targeting program (the high percentage in Haywood does not appear consistent with the emphasis on them in the ACP program in that county). The percentages of farmers who received cost-share assistance under LTAs were:

	Alabama		Missouri		
	Barbour	Henry	Daviess	Harrison	
	Percent of farmers				
Cost-share assistance under an LTA	39	23	26	8	
	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
Cost-share assistance under an LTA	15	44	12	16	24

Some farmers may have received help from SCS and ASCS in the past and had gotten much of their farms protected from erosion. Hence they would have less need for help from the agencies during the survey period. So, we asked them the extent to which they received technical help from SCS and cost-sharing assistance from ASCS during all of the years they had farmed (app. tables 13-14). About half the farmers said they called on SCS when they had a specific problem and a little over one-fifth said they had worked with SCS moderately or very closely on a continuous basis. Thirty-six percent said they had used cost-sharing funds regularly or fairly often, and 39 percent said they had used them once or twice. Below are the persentages who said they have never received help from the two agencies:

	Alabama		Missouri	
	Barbour	Henry	Daviess	Harrison
	Percent of farmers			
Never received help from SCS	31	28	43	40
Never used ASCS cost-share funds	35	20	36	18

	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
Never received help from SCS	34	29	19	23	31
Never used ASCS cost-share funds	31	20	23	20	25

What the Agencies Told Us About Farmers' Use of Technical and Financial Assistance

The DCs provided file information on the hours of technical assistance and CEDs reported dollars of cost-share funds provided to each of the surveyed farmers in 1981, 1982, and 1983. Frequency distributions of the hours of technical assistance and dollars of cost-sharing for each of the 3 years are published in the Basebook published as part of this project. Distributions as totals for the 3-year period 1981-83 are given in appendix tables 15 and 16; the distribution of per-farm values of SCS

and ASCS inputs combined are in appendix table 17. Highlights from this entire set of data are as follows:

Type of assistance	Alabama		Missouri	
	Barbour	Henry	Daviess	Harrison
	Percent of farmers			
26 hours or more technical help	63	25	19	7
$1,000 or more cost-share funds	26	6	23	15
$2,000 or more technical and cost-share assistance	25	9	15	8

Type of assistance	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
26 hours or more technical help	20	28	6	39	26
$1,000 or more cost-share funds	18	35	24	54	26
$2,000 or more technical and cost-share assistance	12	25	19	42	20

Barbour's concentration on LTAs and the large amount of SCS acceleration in Walla Walla show up in the high proportion of the farmers in those counties who received 26 hours or more of technical assistance. A little less than one-third of the total sample received no inputs from the two agencies during 1981 to 1983, and a little over one-third received inputs in amounts up to $1,000 from the two agencies combined. The heaviest concentration of conservation agency inputs was in Walla Walla.

How Much Did Farmers Know About Targeting?

Farmers' increased awareness of conservation program activities could lead to increased participation in delivery system activities. We asked farmers if there had been any change in SCS programs or activities and whether cost-share funds were easier, about the same, or harder to get compared with 1980 (see below and app. tables 18 and 19):

Perception of change	Alabama		Missouri	
	Barbour	Henry	Daviess	Harrison
	Percent of farmers			
Changes in SCS	39	35	39	46
Cost-share funds easier to get	14	4	15	10

Perception of change	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
Changes in SCS	35	41	56	76	46
Cost-share funds easier to get	7	29	12	16	14

The percentage of farmers who saw a change in SCS programs was fairly large in all states, and especially so in Walla Walla and Columbia. The changes reported most often by farmers who perceived change in SCS were greater contact with farmers; more publicity and information; more activity, meetings, and tours; and more farmer involvement in conservation activities. Many farmers commented on the increase in SCS activities and their more frequent visits to farms. A farmer in Tennessee said: "It used to take a lot longer to get them to come out to your farm." A farmer in Washington said: "SCS is much more aggressive. . . many people didn't know they existed

before. They're getting out of the office more." In all states, a number of farmers indicated that there had been a change in the practices emphasized by SCS and some mentioned the availability of no-till drills through SCS, especially in Washington.

Only 14 percent of the respondents said cost-sharing funds were easier to get, and 31 percent said they were harder to get. The high percentages who said cost-share funds were harder to get in Alabama likely reflected the fact that cover crops had been removed from the list of practices eligible for cost-sharing. The high percentage in Columbia may have been because the respondents had used up their 3-year eligibility for cost-sharing on conservation tillage. Cost-share funds in these counties had been relatively easy for farmers to obtain prior to targeting.

Farmers were handed a card with an explanation of targeting. The card specified that theirs was a targeted county. They were then asked whether they had heard about the program. The responses are given in appendix table 20; the percentages indicating awareness are:

	Alabama		Missouri		
	Barbour	Henry	Daviess	Harrison	
	Percent of farmers				
Aware of targeting	41	42	50	41	
	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
Aware of targeting	47	61	51	67	50

How Much Did Farmers Change Their Participation?

We asked farmers whether their contacts with SCS during the 3 survey years had been greater, about the same, or less than in the previous 3 years. The majority said their contacts were about the same; 11 percent said their contacts with SCS had decreased (see app. table 21). The following percentages said their contacts with SCS had increased:

	Alabama		Missouri	
	Barbour	Henry	Daviess	Harrison
	Percent of farmers			
Increased contact with SCS	30	32	17	17

	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
Increased contact with SCS	23	35	24	48	29

We asked the DCs the same question about survey farmers' change in contact with SCS. Reports from DCs in five counties agreed almost exactly with farmers' perceptions. Fewer Barbour and Daviess farmers rated themselves as having greater contacts with SCS than reported by the DCs. The opposite was true in Henry county.

Increased cost-sharing funds available under targeting could result in an increase in the number of farmers who received cost-sharing funds, an increase in average cost-sharing payments per farmer per year, or both. Appendix table 22 shows the number of individuals in the study counties who received cost-share funds while appendix table 23 indicates average cost-share payment per survey farmer who received cost-share payments. Factors other than targeting, of course, influence both the number of farmers who received cost-shares and the average size of payments, such as the particular individuals who participate in any given year, the amount of conservation work they complete that is eligible for cost-sharing, and farmers' abilities to finance conservation investments on their own.

In both Alabama counties, the number of farmers receiving cost-sharing funds dropped sharply, partly because of the emphasis on LTAs under the target-

ing program, partly because cover crops were removed from the list of eligible practices, and partly because low farm incomes made it difficult for farmers to cover their share of the costs for applying practices. Average payments per farm went up in both counties, but went up much more sharply in Barbour because of the greater emphasis on LTAs there than in Henry. There was a slight increase in average payments per farmer in Daviess and a slight increase in the number of farmers who received cost-sharing funds in Harrison. In Tennessee, the number of individuals receiving cost-sharing funds went up sharply and the average payment increased moderately in both counties. In Columbia, both the number of individuals receiving cost-sharing and the average payment increased substantially. In Walla Walla, the number receiving cost-share funds nearly doubled, while the average payment per farmer went down; the CED told us that most of the increase in applications was from people using cost-sharing funds for the first time, especially for min-till and no-till.

The percentages of surveyed farmers who had more than a 10-percent increase in ASCS cost-share funds as an average for 1981-83 compared with 1980 are shown below (more detail in app. table 24):

	Alabama		Missouri		
	Barbour	Henry	Daviess	Harrison	
	Percent of farmers				
Receiving more than 10-percent increase in cost-shares	41	24	24	21	
	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
Receiving more than 10-percent increase in cost-shares	33	38	25	50	32

What Other Sources of Help on Erosion Control Did Farmers Use?

Extension was mentioned most frequently after ASCS and SCS as a source of help on erosion problems, being cited by 31 percent of all respondents, and by 64 percent of the farmers in Columbia county, where SCS and ASCS had close working relationships with Extension. Neighbors were a close second to Extension as a source of help. Chemical and fertilizer companies were third.

Sources other than SCS and ASCS from which operators received help on soil erosion problems are given in appendix table 25; distribution of the number of sources other than SCS and ASCS is in appendix table 26. (For comparison, we added the percentages of farmers who received assistance from SCS and ASCS to appendix table 25.)

Over half the farmers said they received help from one or more other sources. However, this varied from 23 percent in Barbour to 37 percent in Haywood to 80 and 81 percent in the Washington counties.

The tremendously wide variation in the number and selection of sources of help among states (and to some extent between counties within states) may be due to many factors. One is the nature of the erosion problem and feasible solutions to it: witness the dependence on land improvement contractors in Missouri where there is heavy emphasis on terracing and the dependence on chemical and equipment companies in Washington where conservation tillage is emphasized. Other factors influencing farmers' decisions on choices of assistance likely include educational and income levels, knowledge of and confidence in representatives of the various potential sources of help, and cooperation and coordination among agencies. More sources of help may reinforce farmers' decisions and their ability to get conservation practices on the land.

A recent Iowa State University study showed the following sources of conservation information in the order of use by farmers: (1) magazines; (2) friends, relatives and peers (comparable to our "neighbors"); (3) ASCS; (4) dealers; (5) SCS; and (6) Extension (*3*).

If respondents indicated some awareness of targeting, we asked them where they had heard about it and provided a list that included media as well as agency and organizational sources. Radio and TV were the sources mentioned most often in Missouri and Alabama, and second most often in Tennessee. Other farmers were ranked as the top source of information in Tennessee and Washington, and as an important source in Missouri and Alabama also. Even though SCS was the original source of much of the public information on targeting, few farmers mentioned SCS as one of their sources. In Alabama, Missouri, and Tennessee, they mentioned ASCS rather frequently, perhaps because ASCS periodically sent out notices saying that additional cost-sharing funds were available under the targeting program. Farmers in Columbia county and in Tennessee frequently mentioned Extension as a source of information, and Washington farmers often specified company field or sales personnel.

What Factors Were Associated with Farmers' Participation in the Delivery System?

We analyzed factors associated with farmers' SCS participation scores, changes in contacts with SCS, and their use of ASCS cost-sharing funds (see appendix for definitions of variables and procedures used.)

Factors Related to Level of SCS Participation

Four variables were important in explaining variations in SCS participation in three or more states (app. table 27). Farmers with higher participation scores tended to have more education, to be risk prone, to feel there was peer pressure for adoption in their counties, and to operate larger farms.

Education was important in all states except Washington. Education may not have shown up as important in Washington because of the generally higher levels and narrower range of levels in education in that state.

Farmers who were risk prone (as opposed to risk averse) were more likely to be high SCS participants in all states except Washington. These results suggest that farmers in Alabama, Missouri, and Tennessee worked with SCS on erosion control practices that were risky in the sense that they involved significant outlays and uncertainties regarding the outcome. The biggest increase in practices from 1980 to 1983 in Alabama and Tennessee and the second biggest in Missouri were terraces and other structures. The biggest increase in Washington was in conservation tillage. Farmers there may have looked on conservation tillage as a way to reduce risk.

Community social norms could influence farmers' participation. Peer pressure was important in Tennessee, Alabama, and Missouri. This finding suggests that reaching farmers indirectly through neighbors and others, as is done by some SCS staff, is an effective approach.

Size of farm was important in explaining SCS participation in all states. Farmers with larger farm businesses may be more likely to participate, partly because they have a larger resource base at stake to protect and partly because they may have resources to follow up their participation with adoption.

Seven other factors were important in explaining variation in SCS participation scores in individual states, but showed no consistent pattern across states. For example, Alabama and Washington farmers who were most concerned about the erosion problem in their counties tended to be higher participants. Tennessee farmers with an orientation toward farming as a way of life were more apt to be adopters, while in Washington those with a commercial business orientation had higher participation rates. The association with a commercial orientation in Washington may be due to the heavy emphasis on conservation tillage which sometimes reduces machinery and labor costs and contributes to higher net farm incomes.

Missouri and Tennessee farmers who were more concerned about income in the longer run had higher participation rates. To the extent that conservation investments pay off, especially those involving structures, they usually pay off in the longer run and sometimes even depress net incomes in the shorter run.

Factors Related to Change in SCS Participation

Four factors were important in three or more states in explaining change in farmers' contacts with SCS from 1978-80 to 1981-83. Those who increased participation most had more concern for erosion in the county, more education, were risk prone, and operated larger farms (app. table 28).

The fact that farmers who had greatest concern for the erosion problem were more likely to have increased their contacts with SCS suggests that the intensive information/education programs to create awareness paid off.

A number of other factors helped explain increase in SCS contact, but varied in their effect from state to state. For example, Tennessee and Washington farmers with a longer term concern for farm income were more likely to have increased their contacts with SCS, whereas those with a short-term concern more often increased their contacts in Alabama and Missouri. This may be due to the strong pressures on farm incomes in Alabama and Missouri during the study period. Peer pressure was related to increase in participation in Tennessee. In Alabama, blacks were more likely to have increased their participation than whites.

Alabama and Tennessee farmers with less debt per acre more often increased their contacts; this suggests that farmers in those states who had less debt may have been in better position to adopt erosion control practices and therefore sought help from SCS.

Factors Related to the Use of Cost-share Funds

Farmers who operated larger farms generally used more cost-share funds during 1981-83 (app. table 29). Tennessee and Washington farmers who perceived a serious erosion problem on their own farms tended to use more cost-sharing. Risk-prone farmers tended to use more cost-sharing funds in Washington (although cost-sharing could be conceived as a way of reducing risk by reducing the cost of applying practices). Whites used more cost-sharing funds in Alabama than did blacks. Since fewer farmers use cost-share funds than participate in SCS activities, and since a wider array of factors impinge on farmers' decisions to use cost-sharing funds during any period of time, it is much more difficult to identify factors related to use of cost-sharing.

Obstacles to Participation

Surveyed farmers who indicated they had not used SCS during the past 3 years (nearly half the total sample) were asked if there were reasons they had not obtained help from SCS. Farmers in Alabama, Missouri, and Tennessee most often gave responses that involved money: they could not afford to install conservation practices or SCS specifications were too expensive and sometimes too inflexible. Also, some farmers, especially in Alabama and Missouri, indicated that they did not work with SCS because money was not available from SCS for applying practices, implying either that they did not understand the function of the agency or that they would be interested only if SCS had funds to assist on practices. Washington farmers most often said they preferred to be independent or that they thought SCS's assessment of what needed to be done on their farm was incorrect. Some farmers in other states also gave these responses. A few farmers indicated they did not participate because they could not get landlord cooperation.

Farmers who said they had not used ASCS cost-sharing funds (about 60 percent of the total sample) were asked a question parallel to the one for SCS. Alabama, Missouri, and Tennessee responses most often involved a related set of concerns: could not afford to apply the practices even with cost-sharing; funds were not available; or their applications were not approved by the county committee. One farmer in Missouri said: "They were out of money. Whenever I'm ready, they're always out of money." These concerns shaded into a related set of specification problems: could not afford to meet the specifications, did not think the specifications were technically feasible for their farm, or they did not think the solutions were economically feasible ("I could do what I wanted done cheaper without cost-sharing."). These responses in turn related to another: the effort required to get cost-sharing funds was greater than the value gained. A number of farmers in all states referred to the difficulty of

getting cost-sharing funds because of the red tape involved. Farmers in Washington who did not use cost-sharing funds indicated most often that they did not need them (some farmers in other states gave this response also), or that they were philosophically opposed to the program. Some, especially in Tennessee, said they had not used cost-sharing funds because they were not aware they were available. A number in Missouri mentioned they had not gotten cost-sharing funds because weather conditions kept them from applying practices. Several in Alabama said that ASCS did not cost-share the practices they wanted to apply.

County and state SCS and ASCS personnel in Alabama stressed that weather, cash flow, and other financial problems during 1981 to 1983 had a big impact on the ability of farmers in the targeted area to apply conservation practices and therefore their use of assistance from both agencies. An ASCS district director observed that there were more applications for cost-sharing in the eastern part of the targeted area because farmers grew more peanuts and therefore had higher incomes and could afford more practices. Alabama professionals also observed that it was difficult to get conservation practices installed on rented land and to keep them there once they had been installed. One of the SCS staff indicated that absentee landowners were one of the biggest obstacles to conservation in the area. Several indicated that as farms and machinery had gotten bigger, fewer farmers could find the time to carry out contouring or other conservation practices.

SCS and ASCS personnel in Missouri stressed several factors that had strongly influenced farmers' adoption of erosion control practices and hence their participation in conservation programs. First was the weather: a good crop year in 1981; prolonged, heavy rains in the springs of 1982, 1983, and 1984; followed by a severe drought in the summer of 1984. The weather had several impacts on conservation practice adoption, most of them bad. One was the rainy weather that kept farmers from getting into the fields to install practices. Another was damage to crops and low yields which, combined with economic conditions, contributed to low farm incomes. This made it difficult for farmers to finance erosion control practices, even with cost-sharing. A member of the area conservationist's staff said that in his 13-year professional career, he had never seen farmers so discouraged; that there were two or three farms being sold at the courthouse each week (June 1984); and that in one community in northwest Harrison county, every farm was owned by the Farmers Home Administration. According to one DC in Missouri, there may have been one useful outcome of the heavy rains. In the spring of 1984, there were dramatic losses due to the heavy rains. On one field, a farmer had pulverized the top 4 inches of soil, which a heavy rain removed. SCS estimated that the soil loss from this field was 1,000 tons per acre. The DC believed such catastrophic events sensitized farmers to the need for conservation.

A positive factor in Missouri and other states was the PIK (payment in kind) program that took land out of crops and left land idle so practices could be installed during the summer.

SCS and ASCS personnel in Tennessee emphasized the effect weather conditions had on farmers' interest and ability to participate in their programs and to apply practices. They referred to a flood in 1981 and a drought in 1983. Weather and economic conditions lowered farm income, making it difficult for some farmers to finance investments in erosion control practices. In addition, one DC stressed how inflation had increased the cost of installing practices.

All surveyed state and county SCS and ASCS professionals in Washington stressed the effect of farm programs on participation in the conservation effort. They indicated the programs sometimes had positive effects, such as taking land out of production, putting it in grass, and requiring cover on conservation acres. Most, however, emphasized two negative impacts of the programs. One was programs that made it more profitable for farmers to follow summer fallow in the heavier rainfall areas (where insufficient crop residues are left on the surface, the soil is exposed to increased erosion). The other factor related to farmers' base acreages for the wheat program. Many professionals in the area recommend grass in the crop rotation as a conservation measure. However, they said that ever since the 1950s farmers in the area had periodically got-

ten burned by having too many acres of grass, thus reducing their base acreage for wheat payments and loans.

First-Time Participants

We also attempted to gain more insights on the characteristics of farmers who were reached for the first time by both SCS and ASCS after the targeting program started.

During personal and phone interviews, DCs most often identified first-time participants in the SCS program as follows:

- New farmers, either a son or daughter taking over a farming operation, or farmers new to the area.
- Landlords, especially those who leased their land to new renters who told them about SCS. One DC told us that renters sometimes think that landlords are not interested in installing conservation practices, especially structures that require considerable investment. But, he observed that many landlords are interested in conservation because it protects their land and their investment, and they can use the expenditure as a tax writeoff.
- Operators of smaller farms. The Haywood DC told us that 50 percent of that county's new participants were farmers on smaller tracts with whom SCS previously had little or no contact. However, the Walla Walla DC said that about 40 percent of the first-time participants there were dryland farmers with 1,000 acres or more.
- Farmers who were exploring ways of controlling erosion with less expense than conventional terraces, especially those who were trying conservation tillage for the first time and felt the need for considerable information on the technology of it.
- Farmers who responded to the increased publicity, activity, or personal contacts associated with the targeting. These included some farmers who did not believe they had an erosion problem until SCS called it to their attention, some who knew they had a problem but were too embarrassed to admit it, and some whom SCS just had not contacted before.
- Part-time farmers.

The CEDs identified the following types of individuals who first received cost-sharing funds during 1981-83:

- Landlords, some of whom had become interested in the program through their renters.
- Farmers who were independent and wanted to do the job on their own, but were motivated to apply for cost-sharing funds because of the farm income situation.
- Farmers trying erosion control practices for the first time.
- Farmers who became aware of the ACP program for the first time because of the publicity on targeting.

Staff Perceptions of Program Performance

Following are state and county SCS and ASCS staff perceptions of changes in farm operators and their land because of targeting, improvements in conservation programs due to targeting, and factors influencing the outcome of their targeting programs.

Changes in Farmers and Their Land

Changes in farmers and their land perceived by conservation professionals are summarized below.

Greater Awareness

Conservation staffs in all states told us that one of the first and most important things that hap-

pened under targeting was that farmers became more aware of conservation problems, needs, and opportunities. Several also said that businessmen and others became more aware of the need for conservation. The conservation professionals generally attributed the increased awareness to information/education programs conducted by the conservation agencies, in some cases supported by Extension. Several referred to the frequent newspaper and magazine articles published about targeting and farmers' accomplishments. Others mentioned the increased visibility of practices farmers had installed; one CED said this made their program easier to sell.

Improved Conservation Ethic

A second perception of the conservation professionals was that targeting improved farmers' conservation ethic. The change was referred to in various ways: conservation ethic, improved attitudes toward conservation, increased enthusiasm for conservation, and increased willingness of farmers to do something about erosion. Several DCs said that some farmers became motivated enough to install erosion control practices despite financial problems.

Adoption of Practices

Most county and state SCS and ASCS staff said an important result of targeting was to "get more practices on the ground." Many cited specific figures such as increase in acres of conservation tillage or miles of terraces constructed. Most said the process of getting practices applied had been speeded up by having increased technical and cost-sharing assistance available under targeting. A DC in Alabama also told us more farmers were carrying out practices according to specifications than was the case prior to targeting. Several state SCS and ASCS staff pointed to the decrease in the number of moldboard plows and the increase in chisel plows and no-till drills on farms and at machinery dealers as signs of progress.

Reduction in Soil Loss

A few SCS personnel mentioned that targeting had resulted in increases in acres benefited or acres adequately protected. Most of the SCS staff and some of the ASCS personnel indicated that targeting had resulted in large reductions in soil loss; some cited specific statistics.

Environmental Improvements

About one-fourth of the SCS staffs and a few ASCS personnel reported that targeting had produced off-site benefits, such as reduction in sedimentation and improvements in water quality. The Missouri SCS staff also mentioned improvements in wildlife habitat from farmers planting warm season grasses, a practice emphasized in conservation programs in the Green Hills area.

Sequence of Changes

A number of the agency staffs stressed that things happened as part of a sequence or process. Some put it this way: first they saw changes in farmers' attitudes, then they saw farmers starting to change their practices, and later they observed more erosion control practices on the ground.

Improvements in Conservation Programs Due to Targeting

Program changes perceived by conservation staffs are outlined below.

Higher Priority on Critical Resource Problems

Conservation professionals, especially those in SCS, told us that targeting had given them a better understanding of resource problems, had helped them put needs in perspective, and led them to set higher priorities on critical resource problems. This priority setting had generally led them to concentrate more on cropland and less on areas such as roadbanks and schoolgrounds.

Increased Staff Capabilities

SCS professionals said that the special training provided for most of the staff who worked in the targeting program had resulted in increased staff capabilities. Some stressed that work in targeting increased staff understanding of erosion rates, soil fragility, and productivity concepts (which

built on the development and widespread use of the Universal Soil Loss Equation that started in SCS about the mid-1970s). SCS staff who worked with farmers gained greater competence and confidence in their ability to work with farmers. Some staff said they felt more in tune with the needs of farmers and that they did a better job in working with them.

Increased Cost-effectiveness

SCS staff reported increases in cost-effectiveness of their technical assistance programs under targeting. They based their responses on various measures: increases in work accomplished per staff year, decreases in costs of getting practices applied, or decreases in costs per ton of soil saved. They attributed improvements in cost-effectiveness to concentration of efforts on more erosive farms, increased staff capabilities developed under targeting; mounting a more intensive program; use of laser levels, two-way radio equipment, and computers purchased with targeting funds; and in some cases to group activities.

ASCS staff also stressed cost-effectiveness in the use of cost-share funds.

Factors Influencing the Outcome of Targeting

SCS county and state staffs gave us their perceptions of factors that contributed to or served as obstacles to progress under targeting.

Factors Contributing to Success

DCs mentioned the increased resources available under targeting more often than any other factor contributing to the success of their targeting effort. Several mentioned the importance of having additional technical staff. Others stressed the value of having especially competent individuals to work with in the targeting effort. The Columbia DC indicated that the biggest positive factor was having the services of the previous county extension director who had 20 years of experience in the county and the respect of farmers. Several indicated that targeting budgets had provided enough operating funds to buy equipment, supplies, and materials that let them make more effective use of the most important program input, namely staff time. The number of DCs crediting increased cost-share funds as the factor contributing to the success of targeting equalled the number crediting technical assistance as the success factor. They believed these funds added an important incentive to get many farmers to adopt practices. The Barbour DC also said the ability to obligate cost-share funds under LTAs made it possible to plan year to year to fit farmers' needs.

The factor mentioned second most often as contributing to success was increased farmers' awareness of the need for erosion control mentioned previously. A few DCs mentioned the importance of the various agencies agreeing on what needed to be done and working together on the targeting effort. Two DCs mentioned the availability of river basin studies that helped them pinpoint the erosion problems. Another mentioned the role of newly emerging conservation tillage technology. One DC stressed the importance of having some progressive farmers: "You don't need a lot of them; you just need a few to get things started, then farmers will sell each other." One DC mentioned the importance of having a district board that was active and willing to perform. One DC mentioned the value of having a staff willing to innovate.

A state SCS staff person observed that where there was a combination of more SCS staff, a good district board, a good DC, and more cost-sharing funds, things really happened. Where they had this combination, they could see the difference when they drove across the line into a targeted county.

Program Obstacles

SCS county and state staff identified several kinds of obstacles. One set related to obstacles to farmers' adoption and therefore participation in the program; these responses are covered in the subsection

on participation. Another set, related to the adequacy of resources available, is covered in section III. Other obstacles to program performance that were stressed were: the hiring freeze preventing SCS new hires in some areas at the start of the targeting program; personnel ceilings, sometimes more of a constraint than budget; uncertainties in program planning and execution because of uncertainties about the continued availability of targeting funds; and cost-share funds sometimes not available until late spring.

One DC said that the biggest obstacle was that the costs of erosion control invariably exceeded what the farmer had expected, especially for new cooperators. Farmers often discovered that there was much less money available from cost-sharing than anticipated. The DC said that this gap between need and availability of funds was his biggest frustration.

Other Performance Indicators

Concentration of Efforts on Farms with More Serious Erosion Problems

We studied the extent to which SCS had concentrated their efforts on more erosive farms under targeting. The percentages of survey farmers on the most erosive land (about one-third of the total) who received 26 hours or more of technical assistance during the 3-year period 1981-83 were:

Alabama		Missouri	
Barbour	Henry	Daviess	Harrison
Percent of farmers			
63	37	40	23

Tennessee		Washington	
Dyer	Haywood	Columbia	Walla Walla
Percent of farmers			
21	39	0	89

This rough indicator shows that the SCS program in Walla Walla and Barbour concentrated heavily on survey farms with more severe erosion problems; programs in other counties did so to lesser extents.

National ASCS reports using data from the CRES system indicated that during 1983 over 75 percent of the targeted cost-share assistance was being applied to lands eroding at 2T or greater, compared with only 56 percent of the regular ACP funds being applied to lands eroding at 2T or greater.

Reaching New Participants

We asked DCs how many of the farmers they worked with during 1981-83 had not previously participated in their conservation programs. Their responses were: Barbour, 15 to 20; Henry, very few; Daviess, 15 to 20; Harrison, very few; Dyer, very few; Haywood, 15 to 20; Columbia, very few; and Walla Walla, 50 to 60.

The extent to which SCS reached first-time participants in these study counties closely followed their program emphasis on reaching new cooperators, except Harrison county where emphasis on contacting farmers did not produce many new cooperators.

CEDs in study counties were also asked the extent to which they provided cost-share funds to first-time participants during 1981 to 1983. The CEDs in Daviess, Harrison, and Walla Walla indicated that from 6 to 15 new participants had joined the ACP program each year during this period. Several other CEDs said that, because of the increased cost-share funds under targeting, some farmers received cost-share assistance who would not have without targeting.

Changes in Farmers' Concern for Erosion Problems

Surveyed farmers responded to a question on how concerned farmers in their county were about erosion compared with 3 years earlier. Responses to the question represent "soft" data, but as shown

below, two-thirds said farmers were more concerned (a complete summary of responses in appendix table 30):

Alabama		Missouri		
Barbour	Henry	Daviess	Harrison	
Percent of farmers				
57	69	60	48	
Tennessee		**Washington**		
Dyer	Haywood	Columbia	Walla Walla	Average
Percent of farmers				
64	88	83	79	68

Those saying that farmers were more concerned most often cited increased agency activities and publicity as the reasons, especially in Washington and Missouri. Other reasons mentioned were increased conservation efforts by farmers, increased severity and visibility of erosion problems, and concern that continued erosion would cut farm incomes.

Changes in Farmers' Inclinations to Use Erosion Control Practices

An average of 56 percent of the farmers indicated they were more inclined to use erosion control practices in 1983 than in 1980:

Alabama		Missouri		
Barbour	Henry	Daviess	Harrison	
Percent of farmers				
62	62	63	52	
Tennessee		**Washington**		
Dyer	Haywood	Columbia	Walla Walla	Average
Percent of farmers				
44	65	55	45	56

* * * * * *

Following are findings related to the three previous subsections presented at this point while the data and other information leading to the findings are fresh in mind. Some of the findings are reinforced by data we studied but did not include in this report.

Farmers increased their participation in SCS activities as a result of targeting.

There were fairly wide differences among counties and states in both levels of SCS participation and change in participation after targeting. Overall, about 30 percent of the farmers in the samples said their contacts with SCS were greater in 1981-83 than in 1978-80. Farmers' perceptions of their changes in participation were reinforced by reports from their DCs with little exception. The data suggest a fairly sizable increase in farmers' use of SCS assistance. We believe that much of the increase can be attributed to targeting. This finding is supported by about two-thirds of the surveyed farmers indicating they were aware of targeting and about half reporting they had seen changes in SCS programs such as greater contact with farmers, more publicity and information, more activity, and more farmer involvement. We found a close relationship between awareness of targeting and SCS participation in all states.

Both the number of farmers receiving cost-share funds and average payments per farm per year increased as a result of targeting, with increase in average payment accounting for the larger share of increase in funds used.

Farmers increased their use of cost-share funds. The fact that they did so, and that the biggest increases occurred in the counties with the biggest increases in cost-share funds under targeting, is attributable to targeting essentially by definition.

About a third of the surveyed farmers increased their use of cost-share funds. Average cost-share payments per farm increased 28 percent. Increase in average payments per farm explains more of the increased use of cost-share funds than does the increase in the number of farmers receiving cost-share funds. Neither increase was very large overall, and there were wide variations among states.

Targeting reached relatively few first-time participants in either SCS or ASCS programs.

One DC reported working with 50 to 60 farmers who had not previously participated in SCS programs, three reported 15 to 20 new cooperators, and four reported very few or none. CEDs reported from none to as many as 10 to 15 farmers in their counties received cost-sharing funds for the first time. We conclude that the conservation agencies mostly worked with farmers who had been cooperators prior to targeting.

Farmers in targeted areas became more aware of erosion problems.

Two-thirds of the surveyed farmers said farmers in their counties were more concerned about erosion than they had been 3 years earlier. Many attributed this change to increased information and activity of the conservation agencies. DCs and CEDs unanimously indicated that one of the biggest effects of targeting was the increase in awareness of erosion problems, their consequences, and possible solutions. This finding is consistent with an Iowa State University study (*6*) finding that the longer a county had been targeted, the greater the number of farmers who saw an erosion problem at the community and farm levels. Increased awareness could lead to increased participation in delivery system activities and ultimately to adoption.

The conservation ethic of farmers in targeted areas improved.

Farmers' responses reinforced observations of DCs and CEDs that farmers' attitudes toward conservation and their motivation to solve erosion problems had improved. Improvements in attitudes and ethics could lead to increased adoption of erosion control practices.

Financing erosion control practices was the biggest obstacle to participation.

The biggest obstacle by far to participation in conservation delivery system activities was farmers' inability to finance investments in erosion control practices. This was reported to us repeatedly by farmers and by conservation professionals. Cost-sharing made it possible for some farmers to move ahead with conservation programs. Others could not afford to adopt even with cost-sharing. Hence, they had little motivation to participate in conservation program activities. Participation levels tended to be lowest in states like Missouri where financial problems were especially acute.

Farmers varied widely in the extent to which they used various sources of help on controlling erosion problems.

There were dramatic differences among farmers, among counties, and among states in the sources of help on erosion control. For example, the percentage of farmers who used no sources other than SCS and ASCS varied from 20 in Walla Walla to 77 in Barbour. The percentage using Extension varied from 64 in Columbia to 10 in Barbour.

The agencies made some progress in concentrating fairly heavily on farms with more serious erosion problems.

Our analysis of SCS concentration on farms with more serious erosion problems under targeting showed that it ranged from fairly heavy concentration in Walla Walla and Barbour to some emphasis to little emphasis. CEDs reported their county committees often placed relatively little emphasis on farm-to-farm differences in severity of erosion problems during the 1981-83 period, primarily because of lack of relevant data.

A few personal and farm business characteristics are consistently associated with participation in the conservation delivery system; but most factors affecting participation vary widely among regions.

A number of factors vary widely among regions in the magnitude and direction of their influence on participation. Such factors are not useful in designing programs at the national level. However, it is relevant to consider such factors in designing and implementing programs tailored to fit states, and sometimes areas within states. Examples of such variables are percentage of land rented, orientation toward farming as a way of life as opposed to farming as a commercial business, and concern about farm income in the longer versus the shorter run.

Some factors are fairly consistently associated with participation across regions; these can logically be used in designing conservation programs at the national level.

Those who used SCS the most tended to have higher education levels, to operate larger farm businesses, were more risk-prone, and believed that there was peer pressure toward adoption. Several factors were rather consistently associated with increases in farmers' SCS participation after targeting was initiated: concern for the erosion problem in their county, higher education levels, larger farm businesses, and risk-proneness. Our findings are consistent with the Iowa State University study (*3*) which showed that farmers with higher rates of use of conservation information tended to be higher educated, operating larger farms, and more convinced of the seriousness of erosion problems.

Delivery system factors influenced participation and related items.

We were not able to quantify delivery system factors for use in statistical analysis, but we found evidence that program characteristics influenced farmers' participation and other program outcomes. For example:

- The largest increase in SCS and ASCS participation generally occurred in counties with the largest increases in resources under targeting. Missouri was an exception, possibly because of the long history of farmers' cooperation with SCS, the difficult financial circumstances faced by farmers, or weather conditions making it difficult to apply conservation practices. DCs reported more requests for help when farmers discovered they had more staff available. CEDs reported that they received more applications for cost-sharing when farmers found there were more cost-sharing funds.

- Increase in average size of cost-share payments most often occurred where LTAs were emphasized under targeting and where more cost-sharing funds for conservation tillage were made available as a result of targeting.

- The extent to which the conservation agencies reached first-time participants was closely related to special efforts devoted to reaching them as part of the targeting effort, with Missouri again being an exception. Information campaigns likely helped in this effort, but personal contact work appeared to be a crucial factor. In Walla Walla, where SCS reached the most new cooperators, 26 percent of the surveyed farmers reported they had been contacted by SCS (in other counties, the percentages ranged from 2 to 11).

- High percentages of conservation plans developed during 1981-83 were reported in both counties in Tennessee, where there was heavy emphasis on planning, and in Barbour, where there was strong targeting emphasis on planning under LTAs.

Attitudes Toward Targeting

Here we present information on attitudes of various groups affected by targeting after several years of experience with it. How people feel about targeting will have a crucial effect on targeting, as it will influence the extent to which people support or work against it.

Farmers

Farmers in Targeted Areas

We asked surveyed farmers what they thought of concentrating conservation agencies' help in areas that have the most critical and persistent erosion problems. Here are their responses (complete detail is in appendix table 31):

Targeting is—	Percent of farmers
Good idea even though other areas receive less funds	28
Good idea if it has no effect on other areas	25
Good idea if proven effective	44
Not a good idea in any case	2
Other responses	1
Total	100

Several farmers added that the idea was all right, so long as there was local control of the program.

SCD board support of targeting varied from strong enthusiasm to indifference. ASCS staff reported that when the decision was made to target, many state and county ASCS committees were strongly opposed to it. But after several years' experience, many of the committees became more supportive of targeting.

We asked survey farmers: "If more than the present amount of SCS technical help and ASCS cost-sharing funds could be made available to help control erosion nationwide, what kinds of farms or farmers do you think should have highest priority for receiving additional help?" The three responses given most often are below:

Priority should be given to—	Percent of farmers
Farms with most critical erosion or erosive soils	41
Farmers with management or stewardship ethics	19
Row crop farmers	11

Only 17 percent of the farmers in Missouri said priority should be given to farmers with most critical erosion. This may have been due to the 40-year history of strong conservation programs in the area and the feeling that farmers should have taken care of their erosion problems by now. Some in Missouri said that poor conservation farmers should not be rewarded. This is consistent with the fact that 29 percent of the farmers in Missouri said that priority should be given to farmers with stewardship ethics and ability to manage, whereas only 14 to 17 percent of the farmers gave this response in the other three states. Other responses were small farms (most often in Alabama), family farms (most often in Missouri), farms with unique or valuable soils (most often in Washington), farmers who meet income criteria, and young farmers.

Farmers in Nontargeted Areas

We did not survey farmers in nontargeted areas, but we obtained some information on the attitudes of farmers in these areas from conservation professionals.

State SCS and ASCS offices in a few of the 13 states we visited said they had received no criticisms from SCD boards or county ASCS committees in nontargeted counties because of the targeting program. Most of them, however, reported a great deal of criticism from farmers in nontargeted areas, that some farmers had contacted their representatives in Congress to object to the targeting program, and in one case had staged an organized protest. Some farmer groups reacted by initiating action to get their areas targeted, as they saw this as a way to maintain the level of conservation resources in their counties. Several SCS state offices were convinced that an important part of the motivation of boards and committees was less outright need and more of wanting to "get their share." One state ASCS office reported that representatives from a group of nontargeted counties had criticized the targeting of cost-share funds in another part of the state. When the state office asked them if they needed more cost-sharing funds, they acknowledged that they did not and said that they just didn't like being left out.

County SCS and ASCS Staffs

All of the DCs and seven of the CEDs in the eight targeted study counties supported targeting as a national program. DCs and CEDs generally emphasized that targeting was sound and that public funds ought to be spent in areas with the most serious erosion. Several indicated that when they first heard about targeting they had serious reservations about it, but had changed their minds. While several indicated targeting should be done regardless, more indicated targeting would be better if done with new funds.

The biggest satisfactions DCs reported with targeting were:

- To be able to "beef up" the program so they could better meet the needs of people.
- To see more conservation practices on the ground and to see the land protected.
- To see the changes in farmers' attitudes toward conservation.
- To take a unit of land, help plan it, and follow a program all the way through to the land being

adequately treated, something some DCs said they had seldom, if ever, been able to do before. While indicating this kind of planning and application activity was hard work, it was easier when you had the increased resources to back you up.

DCs in targeted and nontargeted areas and CEDs in targeted areas in 13 states were asked by phone survey how they felt about the current USDA national targeting program. Their responses:

Attitude	DCs targeted	DCs nontargeted	CEDs targeted
		Percent	
Strongly favorable	29	15	32
Somewhat favorable	46	29	42
Uncertain	17	25	14
Somewhat opposed	6	24	12
Strongly opposed	2	7	0
Total	100	100	100

DCs in nontargeted areas had less favorable attitudes toward the program than DCs and CEDs who had such programs. However, 44 percent of the DCs in nontargeted counties had generally favorable attitudes toward targeting; only 7 percent were strongly opposed.

DCs in nontargeted counties were asked how they felt about targeting among counties within their states. Their responses were:

Attitude	Percent
Strongly favorable	20
Somewhat favorable	49
Uncertain	19
Somewhat opposed	10
Strongly opposed	2
Total	100

Thus, it appears that a major part of the reservations held by DCs in nontargeted counties was less in response to targeting as a concept and more a reaction to the current USDA targeting effort or a reaction to the declining resources available.

State SCS and ASCS Staffs

In 13 states with targeted programs, all of the state SCS staffs and 11 of the state ASCS staffs supported the targeting concept and the national targeting program. Several said that either they or their state committees or associations were opposed to targeting at the beginning, but had changed their minds. Some said that targeting had forced them to do what they should have done anyway, namely to concentrate their resources in areas with the biggest erosion problems. One SCS staff person used the analogy of a farmer who worked on the erosion problem on his worst field first rather than the whole farm. An ASCS staff person said: "That's the way you do it with your personal funds—you pay your most important bills first."

Most state staffs expressed enthusiasm for what targeting had done for their state and for the entire country, and indicated that the program should be continued and expanded. One state ASCS staff person emphasized that targeting had helped gain support for their program. He said that before they could never convince the public that they had an effective program. But, keying on critical areas under targeting convinced the public both of the importance of conservation and the approach that ASCS was using.

While expressing their support, some staff attached conditions. The main ifs were: if it's done with new money and if you maintain base programs in nontargeted areas.

One of the state ASCS staffs who did not support targeting argued primarily that it was not feasible to have decisions on what areas should be targeted made at the national level. The major concern of the other ASCS staff who did not support targeting was that under the program, the targeted area in their state had gotten more cost-sharing funds than they could use effectively in a short period of time, resulting in inefficient use of resources.

SCS and ASCS National Offices

SCS launched the targeting effort with a firm conviction that it was the right thing to do and with a commitment to make it work. The Chief and CTA program managers have remained firmly committed to targeting, support it enthusiastically, and have expressed their resolve to carry out the program as

outlined in the NCP, even if it is necessary to redirect funds to do so. The ASCS national office has less at stake in targeting since ACP is a relatively small part of its total program. But, ASCS administrators remain committed to the program. Both agencies see targeting as a way to get more conservation practices applied per public dollar spent.

Office of the Secretary of Agriculture

The Secretary and Assistant Secretary of Agriculture for Natural Resources and Environment endorse targeting as a part of NCP. They see it as a way to make more efficient and effective use of federal funds in redirecting these funds to the worst soil and water problems.

Although strongly supportive of targeting, the Secretary has been unable to change congressional language to permit additional USDA resources to be targeted.

Office of Management and Budget

OMB long was critical of USDA conservation efforts for being too widespread. It repeatedly cited the need to concentrate CTA and cost-share programs where the problems were most critical in order to make more effective use of public funds. Our interviews with OMB budget analysts revealed that they considered the current targeting program a useful step forward, especially given the history of USDA agencies and progress on soil conservation.

OMB has never enthusiastically supported the NCP of which targeting was a feature. In any case, because of increasing pressures on the federal budget and the necessity to cut every place possible, OMB will now support targeting only as an item of redirection. And there are indications that it may be reluctant to do even that because of concern that Congress may appropriate additional funds to protect base conservation programs.

Congress

Congress' oversight arm, GAO, had cited the need to target public funds on critical resource problem areas. Yet, some say that targeting was initiated mostly administratively by the executive branch without benefit of any specific authorizing legislation. Congress did pass the Special Areas Conservation Program as part of the conservation section of the 1981 farm bill. Some believe that this program, plus the matching funds proposal also in the 1981 farm bill had given the concept of targeting legislative sanction.

Actions in Congress, especially in the appropriations committees, indicated general support for allocating funds to critical problem areas. But, Congress was also concerned about the USDA neglecting other areas. This was especially true in the House, where members are more finely tuned to the voices of their constituents. The Senate expressed little concern about targeting or the need to protect base funds. The House gave numerous indications orally and in writing that it would support targeting if the USDA protected a range of base programs (not just CTA), and that they would appropriate more money for targeting if the administration would request it. For example, the House Appropriations Committee report on the 1983 conservation budget contained the following statement: "The Committee is very concerned about proposals to target conservation operations funds. The committee will expect that any targeting of funds be separately identified and proposed as an increase to the existing conservation operations base accounts" (*17*).

Interviewed staff members of both the House and Senate agriculture and appropriations committees indicated that they had not received a large number of comments on the targeting program. But, the comments they had received were essentially 100 percent negative. Congressional staff members said that Congress was somewhat concerned about the effect targeting had on base programs in non-targeted areas, but that it was even more concerned about redistributions among states under the formula. These concerns led to the caps on targeting and the freeze on redistributions among states under the SCS formula previously mentioned.

National Association of Conservation Districts

NACD is a national conservation organization with elected farmer officers and an executive vice presi-

dent and other staff members in Washington, D.C. It maintains liaison with the state associations of conservation districts (SACDs) which, in turn, have linkages with the conservation districts. Views of NACD were obtained by studying presentations made by the NACD president and resolutions passed by the national association, and through interviews with the executive vice president and with some regional representatives.

NACD officers and staff said they were very supportive of the targeting concept, and an NACD resolution cited it as an efficient method of using additional conservation funds. But the organization has serious reservations about the targeting program as administered by the USDA. The biggest problem NACD cited was that CTA funding has not kept up with inflation and, as a result, funds have to be directed away from areas not targeted. The association believes that targeting is all right under increasing budgets, but not under static or declining budgets. It opposes targeting of either CTA or cost-share funds unless new funding is made available.

NACD also criticizes SCS for not involving the states and districts in selecting areas to be targeted and allocating funds; is concerned about SCS not being able to keep its commitments to districts under its agreements with them; objects to what it considers SCS overemphasis on cropland erosion control in its priorities, and neglect of other conservation areas such as urban sediment control; and feels that SCS had made too many changes too quickly in initiating the targeting program followed by adopting the national formula.

As a result of its convictions on targeting, especially the need for new money to protect the base in nontargeted areas, NACD carried out a lobbying effort against targeting both directly with congressional committees and indirectly by having their member organizations contact their representatives in Congress. Communicating with Congress, NACD representatives argued that two-thirds of the Nation suffers because of targeting (that is, two-thirds of the counties are not targeted and are having staff taken away from them in order to increase staff in the targeted areas). The actions by NACD appear to have considerable effect on Congress' stance on targeting.

The Public

No public reaction to targeting has been obtained since the effort was initiated. However, in the RCA process in 1980-81, 60 percent of the nearly 75,000 individuals and organizations who responded to the targeting feature supported the concept, 8 percent were neutral, and 32 percent opposed it. A majority of the respondents in 41 states supported the feature. In five states, all in the South, a majority of the respondents opposed the feature. The feature was supported by a higher percentage of the respondents in the Corn Belt and Lake States than in the other crop production regions.

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Attitudes of various groups involved in or affected by targeting can be summed up as follows:

Farmers in targeted areas. Fairly favorable, but do not indicate overwhelming support for targeting. Twenty-five percent think targeting is a good idea only if it has no effect on other areas and 44 percent adopted a "wait and see" stance.

Farmers in nontargeted areas. We do not know how a broader population of farmers in nontargeted areas feel, but many of those on boards and committees are negative toward targeting because of concern of losing conservation resources and a feeling of "being left out."

County and state SCS and ASCS staffs in targeted areas. Most are positive to highly enthusiastic about targeting, and some acknowledged their attitudes had improved as a result of experience with targeting. Some qualified their support of targeting by saying it was a good idea if done with new money or if you maintain the base in nontargeted areas, which really implies they do not fully support the concept. If bigger shifts in CTA positions were to take place as a result of budget cuts, some might be less supportive of targeting.

DCs in nontargeted areas. By a 4 to 3 margin, more were favorable toward than opposed to the present USDA targeting effort.

National offices of SCS and ASCS. Firmly committed to targeting and resolved to continue and ex-

pand it if at all possible within budget and congressional constraints.

Office of Secretary of Agriculture. Endorses targeting, but has not been able to obtain earmarked funds for it.

OMB. Philosophically supports the concept, but will not recommend new funds and perhaps not even redirected funds for it in the current budget environment.

Congress. Likes the concept, but is most concerned about maintaining base programs in all areas.

NACD. Strongly opposed to targeting unless done with "new money."

Most unfavorable attitudes toward targeting stem from factors other than the targeting concept, the way the program is managed, or the likely success of the program.

Almost everyone supports the concept of targeting, even those who most strongly oppose the current USDA targeting effort. Criticisms of program management were not the main reasons for opposition to the program. Few have yet had a chance to look at program effects in relation to costs. Rather, unfavorable attitudes appear for other reasons. Major opposition stemmed from reaction to declining real resources available to the conservation agencies to carry out their historical programs and to the fact that most of the funds for targeting had to come from redirection rather than from new appropriations.

Much of the objection to targeting comes from people confusing the effects of declines in real budgets, cuts in personnel ceilings, and the new national formula for allocating CTA funds to states. These are complex, interacting forces. It is not surprising that some find it difficult to keep them separate.

Targeting introduced some national priorities into the federal-state-local conservation systems. NACD and its affiliated state associations and local districts look upon the historical allocations to states and counties as a "right" that targeting disturbed. They would likely have objected to any action disturbing these historical allocations.

Attitudes will have an important effect on the future of the targeting.

The USDA was sensitive to the need to gain and maintain support for targeting. It put out releases showing both the minimal impact on nontargeted areas and the positive effects of the program in targeted areas. One is hard pressed to suggest what the agencies could have done better to get support for targeting. Some felt that the agencies should not have moved into targeting so fast and with so much fanfare. But, we find it difficult to criticize either of these actions on the part of public agencies.

Attitudes toward targeting will certainly affect its future, especially in light of the fact that those who are opposed to it, such as NACD, aggressively oppose it in Congress. On the other hand, targeted areas benefiting from targeting have not been active in supporting it in Congress.

V. Interrelationships Among Agencies and Levels of Government in Targeting

This section covers interagency cooperation among federal agencies in targeted programs, local and state involvement, and federal-state-local dilemmas that have developed in targeting.

Interagency Cooperation Among Federal Agencies in Targeting Programs

Time did not permit an indepth analysis of the interactions among all federal agencies involved in targeting. We emphasize cooperation between SCS and ASCS, and give some attention to the role of the Extension Service.

SCS-ASCS

SCS and ASCS cooperated closely at the national level in screening proposals and making recommendations on areas to be targeted. There was some agency interaction on the funding of targeted areas, but inasmuch as they were on different planning cycles and faced differing budget constraints, the two agencies independently made many of the funding decisions.

There was considerable interaction between SCS and ASCS at the state level. In some states, there was close cooperation between the two state offices in allocating targeted resources to the counties. In Alabama, the important decision to use all targeted cost-share funds for LTAs was made jointly by the two offices.

State SCS and ASCS staffs told us there had been little involvement of ASCS in developing proposals for the first areas targeted. But, they said, ASCS was somewhat more involved in preparation of proposals for areas targeted from 1984 on. In most cases, SCS took the lead in getting the proposals developed; state SCS offices varied in the extent to which they involved ASCS. In some cases, ASCS was involved deeply and from the beginning of the process. In other cases, ASCS personnel were involved minimally and/or belatedly. ASCS concurred without exception that SCS had picked the right areas to target. Where the ASCS staff was not involved, some said they really didn't mind; others made clear they did mind.

The targeting program called for considerable interaction between ASCS and SCS on handling referrals of applications from farmers for cost-sharing funds. Such interaction presented the possibility for closer relationships, as well as potential problems. Typical procedures in the counties are about as follows. When a farmer applies to ASCS for cost-sharing, the application is referred to SCS to do a needs and feasibililty analysis on the practices the farmer proposes to apply. Then, if the ASCS county committee approves the application, ASCS obligates the funds to the farmers and SCS is asked to assist the farmer with design and layout of the practices. SCS checks completed work and, if the work is properly done, certifies that the practices have been installed according to specifications. Then ASCS pays the cost-sharing funds to the farmer. This procedure applies primarily to structural practices. In addition, starting in 1983, some county ASCS committees asked SCS to provide information on CRES Form AD-862 regarding estimated soil loss with and without the proposed practices.

Eleven percent of surveyed farmers who received help from SCS during 1981-83 said they were referred to the agency by ASCS; 20 percent of those who received cost-sharing funds said they were referred to ASCS by SCS. A number of DCs reported that the referral work had helped them reach some farmers for the first time, that they had used these contacts with farmers as an opening to encourage farmers to do more conservation planning, and/or they had motivated some farmers to adopt conservation practices by telling them increased ASCS cost-sharing funds were available.

In most cases, both SCS and ASCS staff reported there was a moderate to heavy increase in SCS workload to handle the referrals because of the increased cost-share funds under targeting. The in-

crease in workload was especially heavy where there was emphasis on LTAs: in assisting ASCS with the selection of LTA applicants, in doing the detailed planning on LTA farms, and followup work.

ASCS acknowledged occasional complaints from farmers that SCS had not handled the referral work fast enough. But most states reported that the problem was a temporary one that was troublesome mostly during the first year that ASCS had additional cost-share funds. After that the referrals were still a problem in some states, but less because SCS caught up or brought in temporary staff to handle the load.

Extension

In the 13 states we visited, Extension's involvement in and support of targeting varied among counties and states. Extension was deeply involved in the targeting program in Washington at the state level and at the county level where SCS, ASCS, and Extension are housed together. Extension took the leadership for the Resource Conservation Management Farms, a multiagency activity under the targeting program in Tennessee. Extension, SCS, and other organizations cooperated on conservation tours and field days in targeted areas of a number of states. In Missouri's Green Hills area, Extension assisted in initiating targeting and worked closely with SCS and ASCS on the program. The district Extension director in Missouri said that SCS-Extension relationships in the area had improved because of the targeting program and that the improvement would not have come about without targeting. Given the sometimes stormy relationship between SCS and Extension in Missouri, this could be rated as a significant achievement *(4)*.

On the other hand, there are persistent questions between Extension and SCS personnel as to which agencies should take the lead on information activities to make farmers more aware of the need for, and advantages of, conservation. Most agree that providing leadership on information/education programs is an appropriate function for Extension. But, in many cases, Extension is not staffed nor in tune with making conservation education a significant part of programs. A number of SCS personnel said that Extension was primarily a production-oriented agency, leaving leadership on conservation to SCS. Several Extension staff accepted this as a reasonable assessment. In two states, SCS told us they had attempted to get Extension involved in targeting, offering to pay the salaries of Extension personnel to assist in the program. But there had been no response.

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SCS and ASCS largely planned and implemented targeting independently, but reinforced each other.

SCS and ASCS planned and executed joint targeting programs in some areas, but this was the exception. Each agency mostly designed and implemented its phase of the targeting program independently of the other agency at all levels. Farmers did not see the agencies as having unified programs. However, the two agencies pursued similar objectives in targeting; there was considerable interaction between the agencies through referrals of farmers and in other ways. The net effect was that the two agencies reinforced each other in the execution of the targeting program. One cannot but be impressed by the number of SCS staff who said that ASCS cost-sharing was the key factor in the success of the targeting program, and the number of ASCS staff who said nothing would have happened under targeting unless SCS had gotten out and stirred up interest.

Targeting sometimes improved cooperation between SCS and ASCS.

We were told that the CRES Form AD-862 sometimes led to contention between SCS and ASCS personnel. But much more often, we were told that the CRES system had led to closer relationships between the agencies, which was the design and intent of the CRES system. Many SCS and ASCS staff people said that working together in the targeting program was instrumental in bringing about closer working relationships between the two agencies at both the county and state levels. A number of staff from both agencies told us they had needed something to help motivate SCS and ASCS to work together more closely, that targeting had helped bring it about, and that it provided the opportunity for them to do even better in the future.

SCS should involve ASCS earlier in the process of planning for targeted areas.

Effective interagency programs require early and in-depth involvement of personnel from both ASCS and SCS. Such involvement would not only promote better feelings, but would lead to stronger support if ASCS were always involved in decisions to prepare targeting proposals and in developing documentation for them. More successful targeting efforts could result from joint program planning from the beginning, even though ASCS's inputs to targeted areas may lag SCS by a year or more.

Housing agency personnel together would lead to improved interagency cooperation.

The move toward agricultural centers in each county in the 1960s and 1970s was one of the biggest innovations occurring in agriculture and conservation delivery systems. We found the closest relationships between SCS and ASCS and the greatest involvement of Extension in targeting programs where all USDA agencies were housed together. Further moves in this direction would encourage joint program planning and implementation.

Local and State Involvement

Within national guidelines, county and state ASCS committees in all states made decisions on the use of targeted cost-share funds, such as practices eligible and practices to be emphasized, cost-share rates, and emphasis on LTAs and variable cost-sharing. Here, we give special attention to soil conservation district boards.

Involvement of Local SCD Boards

There was a wide range in the extent to which local SCD boards were involved in planning and implementing the targeting program. Among the states studied, county and state SCS staff reported that some of the boards had performed one or more of the following in connection with the targeting program: helped set priorities for the resource problems or practices, selected the geographic areas to be targeted within the county, identified farms or farmers needing priority attention, and offered ideas for improving the program. In addition, some supervisors contacted farmers, spoke at field days, and carried out other activities to help interest other farmers in conservation and in targeting. Some Washington supervisors provided equipment for no-till demonstrations and used their own planes to give people tours over conservation areas.

The Missouri state SCS staff reported that involvement of the SCD boards in the Green Hills area increased dramatically under targeting. County and state staff in Washington said that most of the boards in the targeted area became enthusiastic over the targeting and remained active and involved. Some of the increased involvement in Washington was due to targeted funds made available to the boards under cooperative agreements. The state staff told us that some districts that were not accustomed to having funds of their own had a new experience in figuring out what to do with them. Board members became more professional by having this responsibility and opportunity. The staff believed the cooperative agreements kept the boards enthusiastic and involved, and that they had done better by virtue of the agreements. On the other hand, the state staff expressed concern that agreements made it easy for districts to look at the agreements as their only source of funds, and to no longer scramble for state and local funds. We noted also in talking to SCS field personnel in the targeted area that money under the cooperative agreements dominated their thinking when discussing increased resources under targeting. They put much less emphasis on the increased positions under targeting (which is where most of the targeted resources went) and more on the funds under the agreements.

County and state SCS staff in a number of states reported that they had tried to get the boards to participate in the targeting program. But, much of the boards' involvement had been rather superficial and had consisted mostly of the boards reviewing and reacting to plans and progress reports. Further, some SCS staff said the boards were involved early in the program, but later seemed to lose interest and were less involved (in one state, the opposite

was true). One state SCS staff said that their inability to get the boards involved was their biggest disappointment in the targeting program.

On the phone survey, targeted county DCs were asked how much assistance they received from the SCD board in establishing the targeting program. DCs in nontargeted areas were asked how much help they received from boards in carrying out their CTA programs. Their responses were:

Level of assistance	Targeted	Nontargeted
	Percent	
Much	23	56
Some	60	29
Little or no	17	15

State Involvement

The Washington state SCS office reported that the SACD was actively seeking more state funds to support targeting and that the Conservation Commission and the SACD were working jointly on leadership training for new SCD supervisors. Few other states, however, indicated an active SACD role in targeting.

There has been a trend toward greater involvement of state governments in the conservation effort in many states during the past decade. State initiatives include state erosion, sedimentation and nonpoint pollution laws; increased appropriations for conservation; and state cost-sharing.

In most states, various state agencies and organizations provided support to the targeting program, some directly and some indirectly. In Missouri, the State Department of Conservation provided personnel to support the targeting personnel. The State Department of Ecology was very cooperative and supportive of the program in Washington. The Iowa 2000 Project contributed indirectly to the targeting program in that state. The Alabama State Forest Commission cooperated with SCS in supporting the program.

State cost-sharing funds were available to assist farmers apply erosion control practices in Iowa, Missouri, and Minnesota among the states studied (and about 15 other states).

Funds from state and local sources have been increasing more rapidly than funds from federal sources since the late 1970s, although over three-fourths of the funds still come from federal appropriations (see table 4). State and local funds support ongoing conservation programs, much of the support being provided through the SCDs to fund secretarial, clerical, and technician positions.

Federal-State-Local Dilemmas in Targeting

Targeting involves a mixture of federal, state, and local resources and priorities. Coordinating the program at all of these levels, and especially the interlinkages among the various levels, is esssential to the success of the program.

USDA conservation programs historically have been decentralized. In the case of cost-sharing funds, county committees operated within national guidelines, but still had a great deal of discretion on practices to be funded and which farmers would receive cost-share funds. SCS field work is guided by the local SCD boards, which are legal subdivisions of state governments. Farmers and ranchers serving on the boards know local conservation problems and provide valuable insights on how federal assistance can be used most effectively.

During the early 1980s, two trends produced a startling dilemma in the federal-state-local partnership. On the one hand, the NCP called for strengthening the role of the states in conservation programs. This was reinforced by the administration's "New Federalism" policy that called for decentralizing responsibility and authority for allocating financial resources to nonfederal levels. To back up this philosophy, matching grants authorized in the 1981 farm bill and reaffirmed in RCA and NCP were to be made available to SCDs through state conservation agencies.

But, there was a concurrent and increasing trend toward centralization in USDA, with increased central planning, coordinating, and decisionmaking. Some saw

targeting as a sharp departure from the decentralized approach that had previously been the hallmark of USDA conservation programs. Targeting decisions are made at the national level in regard to what criteria should be used, what areas targeted, and how much technical assistance and cost-share resources will be allocated to them. The fact that SCS policies stated "Our philosophy is to accelerate a local effort rather than initiate the effort" helped some, but not very much. The apparent inconsistency was questioned rather quickly. In the public participation activity on the NCP, a participant made this comment: "Selecting priorities and critical areas to be targeted at the national level weakens rather than strengthens the state and local role in conservation efforts. Targeting of federal assistance can be supported only if states and local units of government participate in the decision-making process."

Some believe that making federal conservation programs more effective will require more federal guidance. For example, Crosson and Miranowski wrote: "It must also be asked if improved targeting is consistent with the greater role for state and local agencies in setting conservation priorities. What is important to these agencies is not necessarily important from a national view. The perceived political imperative of serving essentially parochial interests has been a principal obstacle to better targeting all along. It is hard to see how institutional changes that would seem to strengthen these interests will promote improved targeting" *(6)*.

States and counties find more federal guidance distasteful and some question whether anything as broad based as the conservation delivery system can be refocused by having more decisions made at the federal level. Protasel points out that in the targeting program, the technical selection criteria were broadened to accommodate more state and local participation, and added: "The USDA targeting effort is an illustration that in the U.S. federal system, administrators have a difficult time imposing administrative definitions of the national interest on a decentralized and fragmented program delivery system" *(9)*.

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Few soil conservation district boards or state associations of conservation districts actively supported targeting.

Most SCDs and SACDs chose not to support targeting and use it as leverage to get more support for conservation. Boards in the areas targeted in

Table 4—Funds for soil and water conservation programs, by source

Source	1968	1973	1979	1983	1984
			Millions of current dollars		
SCS[1]	240	361	495	698	600
ASCS[2]	196	210	190	190	190
Subtotal	436	571	685	888	790
State	30	42	65	96	132
County and local	33	44	87	90	115
Subtotal	63	86	152	186	247
Total	499	657	837	1,074	1,037
			Percent		
State and county as a percentage of total	13	13	18	17	24

[1]All SCS funds, excluding emergency funds.
[2]All ACP funds, most of which are for soil and water conservation, but including some for energy conservation, water quality, and wildlife.
Source: SCS data provided by SCS, USDA. ASCS data provided by ASCS, USDA. State and county data: 1968, 1973 and 1979 from NACD, "State and Local Cost-sharing Programs, " Note No. 27 and supplements, January 1, 1980; 1983 and 1984 from SCS, USDA.

1981 may not have gotten excited about targeting because additional staff and funds were made available without any action on their part. After proposals were required, a number of boards became deeply involved in developing and promoting proposals. A second reason may be that some DCs simply moved ahead with increased staff and program activity under targeting without involving their boards. The fact that only 23 percent of the DCs in targeted areas said their boards were of "much assistance" whereas 56 percent of the DCs in nontargeted areas gave this response gives credence to this point.

Some district boards and SACDs may have seen targeting as a federal program in which they had little voice. Some may have been philosophically opposed to the concept of targeting. The biggest factor, however, was probably the strong stance NACD took against targeting, unless it was done with new money.

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Strengthen the role of state and local conservation organizations in the targeting effort.

In order for the targeting effort to be successful, some national priorities and direction are necessary. We believe the arguments presented by Crosson and Miranowski on the need for some centralization are valid. Further, we considered the feasibility of allocating funds to state SCS and ASCS offices in line with their resource problems, and letting the state offices do the targeting. We asked state SCS and ASCS staffs what they thought of this state-directed approach as an alternative to a national-directed targeting program. Among 13 state staffs, one SCS and one ASCS staff gave unqualified support and one SCS staff qualified endorsement to this approach. All of the rest believe that under state direction you would get little or much targeting, depending on the commitment to the concept and the strength of the state offices. Different states would use different criteria for targeting. One state SCS staff person said: "It would be an absolute disaster! There are too many political priorities and too many pressures on state conservationists, and differences between state and national priorities." Others also agreed that even the strongest state office needed some outside help when they started to shift staff among areas. State offices have had longstanding authority and encouragement to target on problem areas. Little has been done, evidence that some leverage from the national level is needed.

We believe, however, that the targeting program would be more effective if state and local bodies had more voice in planning and implementing targeting programs. State and local committees and boards are already involved in decisions on what areas will be proposed for targeting. Their role could be strengthened by involving them earlier in pinpointing critical erosion areas, in deciding on areas to recommend for targeting, in developing proposals, and, most important, in planning the program to fit local needs in initiating the program, in giving continuing guidance to the targeting effort, in evaluating the program, and providing feedback for improvements in it. We observed greater participation in delivery system activities and acceptance of erosion control practices in areas where local boards were deeply involved in the targeting program.

Require more state and local financial support for targeting.

As targeting progressed, USDA gave increased priority to areas that would provide financial support to the targeting effort with nonfederal funds. But the Department did not push this concept very far.

Requiring more financial support from state and local levels would have a number of advantages. We observed the greatest progress under targeting where there was convergence of state/local funds with federal funds. This was especially true in Missouri and Washington. This state/local support added leverage to the program. Where state/local groups contribute more of the financing, they have more of a voice in the program. With more at stake, they become more interested and involved.

State/local support can be used to hire technicians to help get practices on the ground, leaving the more technical work to the federal SCS employees (an objective of NCP). State cost-sharing can be of considerable

value in helping farmers adopt practices. Support from state/local levels can provide stability to the conservation effort. Pooling funds from various sources can also lend flexibility to program management since there are certain constraints on federal funds that do not apply to state/local funds, and vice versa.

The NCP and the 1981 farm bill contained a provision for matching grants to states to help them employ technicians, develop their own conservation programs, and do other things. Matching grants would encourage state and local inputs into conservation programs. However, state and local governments have been increasing their support of conservation programs (see table 4), and are likely to be in a better position to increase their support more than the federal government during at least the next several years.

Larger amounts of state/local funds resources would call for increased interactions to coodinate the inputs and priorities in the local-state-federal partnership.

VI. Additional Findings and Suggestions for Improving The Conservation Delivery System

This final section presents additional findings on targeting and suggestions for improving conservation delivery systems. We try to focus on targeting as much as possible; however, targeting was so closely linked to ongoing programs that suggestions may help improve base as well as targeted programs. The section includes farmers' perceptions of conservation programs and how to improve them. The suggestions for improvement are organized under program design, program implementation, and personnel.

Farmers' Perceptions of The Conservation Delivery System

We report here farmers' perceptions of the helpfulness of technical and financial assistance and their ideas for improving conservation programs.

Helpfulness of Technical and Financial Assistance

We asked surveyed farmers who had received technical help from SCS or cost-sharing from ASCS how likely it was they would have applied practices to the same extent without help from the agencies. The percentages who said they most depended on the agencies (by responding "not likely" or "not at all likely" to the questions) are as follows:

Agency	Alabama		Missouri	
	Barbour	Henry	Daviess	Harrison
	Percent of farmers			
SCS	59	30	50	69
ASCS	47	39	70	73

	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
SCS	48	47	26	40	45
ASCS	55	54	16	32	46

The responses suggest that farmers placed high value on help from both agencies in carrying out erosion control programs. The heavy dependence on cost-share funds in Missouri, and to a substantial extent in Tennessee and Alabama, likely reflects

the difficult farm income situation in these three states during the study period.

We questioned farmers to determine whether they perceived a lack of technical or financial assistance as a constraint on their application of erosion control practices during 1981-83. The percentages who said they would have applied more practices if more help were available are:

Type of assistance	Alabama		Missouri	
	Barbour	Henry	Daviess	Harrison
	Percent of farmers			
Technical assistance	5	12	8	11
Cost-sharing	55	80	42	28

	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
Technical assistance	3	11	3	2	7
Cost-sharing	36	38	22	24	41

Responses to such speculative questions are not terribly definitive, since farmers' decisions and actions are influenced by many factors. However, farmers did see financing investments in erosion control practices as much more of a constraint than lack of technical assistance. Farmers in Washington saw cost-share funds as less of a constraint than farmers in other states. In Alabama, Missouri, and Tennessee, farmers told us the practice they would have applied on more acres with additional cost-share funds was terraces; in Washington, it was conservation tillage.

We asked all of the farmers in our samples to rate the helpfulness of SCS technical assistance and ASCS cost-sharing to farmers in their counties. Detailed responses are given in appendix tables 32 and 33; the percentages who gave "very helpful" ratings are as follows:

Type of assistance	Alabama		Missouri	
	Barbour	Henry	Daviess	Harrison
	Percent of farmers			
SCS technical assistance	76	78	64	47
ASCS cost-sharing	53	65	59	48

	Tennessee		Washington		
	Dyer	Haywood	Columbia	Walla Walla	Average
	Percent of farmers				
SCS technical assistance	56	78	74	58	67
ASCS cost-sharing	48	75	59	55	58

The responses are somewhat more valid than the responses to the speculative question reported just above. We conclude that farmers place rather high value on both technical and financial assistance from the USDA, with slightly more giving the highest rating to technical assistance.

Analysis of the interrelationships among variables indicated that farmers who rated SCS as most helpful to the county had high SCS participation scores and also tended to be longer term SCS cooperators. Those who gave ASCS high ratings were more likely to have used cost-share funds.

Farmers' Views on How to Communicate Conservation Information

We asked farmers: "If an agency wanted to get out information on new methods of conservation to farmers in this area, how would be the best way to go about it?" One could presume that everyone, including farmers, gets so much material through the mail they don't pay attention to a lot of it. But many farmers like conservation newsletters. Direct mail was the item mentioned most often by farmers. Local media including local newspapers,

local shoppers'guides, and radio were mentioned second most often. Some emphasized that they spent considerable time listening to the radio and that they had radios on their tractors. Personal contacts were the third most often mentioned method, with demonstration farms ranking fourth. Other items mentioned fairly often were meetings, with emphasis on meetings involving a meal or small group meetings in farmers' homes, national magazines, through private industry, and approaching farmers indirectly through someone they know well.

Farmers' Ideas on How to Improve Conservation Programs

We asked farmers who were aware of targeting how the targeting program could be improved. And we asked all farmers how SCS and ASCS programs could be improved to better meet the needs of farmers. Many of the comments on targeting overlapped comments on the agencies; we've included these ideas under subheadings for each agency below.

Improving Targeting Programs

Farmers suggested five ways for improving targeting:

- Increase program funding was mentioned more often than any other item. This was especially the case in Alabama and slightly less so in Missouri and Tennesssee; it was not a major factor in Washington.
- Increase publicity or educational efforts.
- Coordinate better with other programs.
- Consolidate the management of the program under one agency.
- Solicit more farmer input on the program.

Improving SCS Programs

Farmers' ideas for improving ongoing SCS programs are summarized in the following paragraphs:

- The need for more program flexibility was a dominant theme in farmers' perceptions of SCS programs. Their comments indicated the need for SCS to give more consideration to the different circumstances faced by farmers in developing farm plans, the need to consider a wider range of practices or solutions to erosion problems, and the suggestion that SCS should not adhere so tightly to specifications. One farmer commented: "More farmers would cooperate if they didn't feel under obligation to conform to practices they cannot afford, or that don't fit their ground. A lot of things can be used on his farm, but the farmer is saddled with additional practices he can't use." Another said: "There should be more farmer input and farmer decisionmaking. Sometimes their way is not right for my farm." One farmer acknowledged that SCS was more willing now to listen to farmers' views on practices than they used to be.

- Give more attention to profitability of erosion control measures...costs and returns. Some farmers put this in terms that SCS should pay more attention to economic criteria in developing conservation plans.

- Expand farm visits. Farmers appreciate personal visits, like to have SCS personnel discuss their problems on specific fields, and want a prompt response when they ask for help. Despite a rather large number of farm visits in many of the study counties, a number of farmers still said they wanted more.

- Among staffing suggestions was the feeling that SCS needed more people on the job during some months and "personnel are sent off somewhere else as soon as they are trained and can work on their own." One farmer emphasized that there should be better communication among SCS personnel in the county office. "One person may know, but when another one comes out, his lack of knowledge of the farming operation and what the farmer has already accomplished creates a negative impression of SCS."

- Other suggestions included the need to streamline program processes and reduce the amount of paperwork, need for better interagency coordination, especially with state agencies, need for better communication between SCS supervisors and farmers so farmers can become more involved in district activities, need for more publicity or information (especially in Alabama), and that SCS should do more work with special groups such as young farmers, small-farm operators, and landlords.

Improving ASCS Programs

Farmers' suggestions for improving ACP programs follow.

- Increase cost-share rates was the change in ACP programs most often mentioned. This less often was a plea for changes in policies on cost-sharing, and more often was a plea for county committees and CEDs to update their cost estimates (especially in light of increased costs of applying practices). A number of farmers said that applied practices cost a lot more than ASCS had figured in determining the rates.

- Some farmers recommended that the maximum of $3,500 per farm per year be increased to accommodate farmers who wanted to carry out a large part of a conservation program in 1 year rather than spread it over a period of years. Others urged that farmers be given multi-year funding, or that more use be made of long-term agreements (especially in Missouri and Tennessee).

- A number of farmers suggested increasing seasonal availability of funds. They emphasized problems related to timing, saying that funds need to be made available at a more convenient time of the year, since farmers have only 2 or 3 months in which they can install practices.

- The need for more and better information on the cost-share program was also stressed by farmers. "There should be more information bulletins, rather than just responding to specific questions." Farmers especially expressed the need for more information on what practices would be cost-shared and on the cost-share rates. "It would be helpful if they could tell you exactly what percent they will pay before you start the work, because you don't know what you can afford to do."

- Other suggestions included reducing favoritism in approving cost-share applications, allowing cost-sharing on projects that have already been started, reducing red tape, and ASCS personnel devoting more time to the ACP program.

Improving The Design of Targeted Programs

This section covers findings and suggestions for improving the design of targeted programs.

Overall Design

The main impact of targeting was a scale effect from more staff and funds using approaches traditionally used by the agencies.

Targeting could have had three effects: a scale effect from adding more staff and funds using program approaches being followed in the ongoing programs, the effects of new and unique delivery systems, or some combination of the two. The main effect of targeting came from the increase in resources using approaches already being used in the ongoing SCS and ASCS programs.

Direction from the National Level

The national level of SCS provided little direction or guidance to the states in designing or implementing their targeting program. SCS headquarters staff told us they followed this approach by design, partly because they did not see targeting as a new program, but as acceleration of a program with which SCS personnel were already familiar and involved. The national staff considered it the responsibility of the state conservationists' offices to lead the program.

The ASCS national office issued rather specific guidance and directions to state offices on the targeting program.

State SCS staffs were generally satisfied with direction they had received from the national level. Some, however, expressed the need for more advanced information on budget and personnel outlook for use in planning their targeting programs. Some perceived that the national staff never came to the field on their own initiative to help on the program or check on progress. Several commented that they were asked to submit evidence of accomplishments from targeting within a few months after the program started, and that they were under continuous pressure from the national office to produce such information.

With one exception, ASCS staffs in 13 states believed there was too much national level direction of targeting. Several said they believed firmly in having national policies, but that there should be latitude at the state and local level so that the program could fit local conditions. Several said that whenever anything went wrong anywhere, there was a strong tendency for the Washington office to come out with more and stricter rules for everyone, rather than trying to work out a solution within existing rules for what may have been an isolated case.

Direction and Support from the State Level

The extent to which SCS state offices provided direction on the targeting program varied widely, and appeared to depend largely on the administrative philosophies and personalities of state conservationists. Most state offices supported the program in terms of training, adding specialized personnel to assist county staffs in the targeted areas, speeding up schedules of soil surveying, and inventorying and monitoring critical resource problems. Much of the support was provided through area offices. In two states that we know about, Oregon and Virginia, a full-time person was appointed to coordinate the targeting program in the targeted area.

State ASCS offices and state ASCS committees provided guidelines for the targeting program in their states.

Almost without exception, the DCs said they greatly appreciated the specialized staff help from the area offices under the targeting program.

Some DCs indicated the state and area offices left them essentially free to plan and implement the targeting program as they saw fit. Others indicated they were expected to follow rather specific policies and guidelines (some of which applied to all county SCS personnel in their states). Several DCs indicated there were more directives and arbitrary goals set by the state office than was realistic, and in some cases overemphasis on conservation planning goals. They pointed out that the situation was different in each county. They also said that rather than for planning to be so much of an end in itself, it should be considered a means of reaching a goal. Further, in regard to goals, some DCs said they were given larger staffs and immediately given larger goals to meet. They went on to say the state and area offices failed to recognize that they should have *lowered* the goals during the period they were starting up the accelerated program and training new personnel.

Many complained about the extra reports and paperwork; some attributed it to the targeting program, while others assumed it was a sign of the times and would have come anyway. One said they hated the CRES reports at first, but later realized the importance of them.

The biggest concern expressed almost universally by the DCs was that they were "always in the dark" regarding the future of the targeting program. They indicated that it was extremely difficult to plan the program, budget their own time, work with their boards, and communicate with other relevant people when they did not know how long they would be targeted, nor how many additional resources they would have and for how long.

Almost all CEDs said they were well satisfied with the amount of guidance and direction from the state level.

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Greater attention to differences among areas would produce more effective program design.

We found wide differences among areas in terms of a diverse array of resource problems, soils, people, social systems, and solutions to erosion problems. Many of the variables used in the analyses had quite different influences among the four states in explaining variations in both participation in the delivery system and adoption of erosion control practices. This finding is one of the major conclusions of the entire research project, and indicates that policies and programs must be tailored to the state, area, and county. It corroborates SCS's judgment in not doing too much detailed direction of targeting from the national level, and suggests that less ASCS program direction from the national level could improve program effectiveness.

The finding also suggests that SCS programs could be more effective with more decentralization in some states. In some states, SCS personnel felt they had little discretion on program emphases. (Also, in some cases, the DCs had no choice in the individuals hired to work with them in the targeting program, or even whether new staff were to be soil conservationists or technicians.) Within national and state policies, there should be sufficient flexibility to permit county personnel to design and implement programs to fit local conditions and to utilize the initiative and capabilities of conservation professionals and local leaders.

Involve the national technical centers more in targeting.

The four NTCs were not involved in the beginning stages of targeting at all, according to our interviews. Later, states were encouraged to submit proposals for targeting areas to the NTCs for review, which was done on a hit-and-miss basis. By 1984, some of the NTCs were cooperating in a team approach to accelerated conservation planning, an effort led by the Social Science Division of SCS headquarters.

Providing technical data, information, ideas, and program guidance are major roles of the NTCs. The targeting effort could be bolstered by making greater use of the centers.

Within the constraints of the federal budgeting process, provide firmer commitments of targeted resources.

A number of DCs, CEDs, and state SCS and ASCS staff said they could have made more effective use of targeting funds if they had received a firm commitment for a specified period of time, such as 5 years. Such a commitment would have removed some of the uncertainty, and would have allowed them to develop and follow more specific plans.

Emphasize positive, planned programs.

Both state SCS and ASCS staff stressed the importance of having positive, well-planned programs. One state SCS staff person said that in order for such a program to be successful, plans that build from problem through objectives to program and evaluation are needed. State ASCS staffs also stressed the need for positive planned programs. This seemed to stem from ASCS offices having responsibility for a number of time-consuming functions; without careful planning, ACP can simply be a residual program at both the county and state levels.

State and area offices should periodically remind county personnel of program objectives, encourage them to have planned rather than reactive programs, and convince them it is not always necessary to give top priority to farmers who request help.

Build in program evaluation.

While we did not set out to do an evaluation of targeting, our research provides some information that will be useful in evaluation. For a program as big, new, and to some extent, controversial as targeting, evaluation should be incorporated at the beginning of the program. Both state ASCS and SCS personnel stressed the need for better criteria or measures for evaluation, and for measures permitting valid comparisons among states. One ASCS staff person suggested an on-the-ground evaluation of the program conducted by a national-level team from ASCS, SCS, and other relevant agencies.

Continue to develop reporting systems.

A number of state SCS and ASCS staffs stressed the need for a good, workable reporting system that promptly provided feedback. They could use such a system in evaluating and managing. Some said they had abandoned what they considered excellent state systems in favor of the CRES system, and for the moment, at least, were left with no useful system. Some realized that improvements in the CRES system were on the way, and seemed content with this. Others felt that the CRES system would never do the job for a variety of reasons; too strictly numerical and too much emphasis on tons of soil saved were among these reasons.

Provide more operating funds to support SCS programs.

Increased operating funds were made available under targeting in some counties. Such funds add leverage to the work of the staff. A number of DCs in targeted counties told us that most of their budgets still were devoted to professional salaries and that they were short on secretarial/clerical help or operating funds for items such as travel, newsletters, signs, and other items. In such cases, more effective use of the most important SCS input, staff time, would result from increases in support help and operating funds.

Cost-share programs could be improved by providing more staff help.

Staff increases will be difficult if not impossible to achieve in the near term. However, ASCS cost-share programs could be improved if only a small amount of additional staff help were provided in some county offices. A number of CEDs told us that in the past they had spent about 25 percent of their time on the ACP. However, in recent years, heavy demands on their time for signups on commodity programs, explaining new programs such as PIK, and other work had resulted in their having less than 15 percent of their time left for the ACP program.

Improving The Implementation of Targeted Programs

SCS Programs

Have strong information programs in all targeted areas.

State and county staffs said that one of the biggest things that happened during the first 2 years of targeting was that farmers became more aware of the need for targeting. Drawing on data on change in erosion control practices during the study period, we found heavy emphasis on information as part of the targeting program in three of the five highest change counties, and moderately strong in the other two. There was least change in the areas of minimal information programs.

In most areas, information programs are needed to increase farmers' awareness of the extent of erosion, the consequences of it, and possible solutions. When targeting programs are launched, farmers also need to know that more assistance is available.

Several states, including Washington and Minnesota, follow the approach of retaining information specialists to work in a group of targeted counties or throughout the targeted areas. SCD boards provide funds and guidance to the information person in the state of Washington. Extension should be invited to cooperate in the information programs.

A state SCS person told us they believed that through an innovative program of selling conservation through the media, compared with a one-on-one approach, followed by making more technical assistance available, they could reduce field staff needs by 50 percent.

Encourage wider acceptance of targeting to critical erosion areas within targeted counties.

Targeting to critical erosion areas within counties is implicit in and consistent with the NCP, and with targeting objectives calling for concentration of assistance in critical resource problem areas.

Encourage county staffs to concentrate on farms where control of erosion will have the biggest impact on productivity.

In some areas, SCS made considerable progress in concentrating on farms with more serious erosion problems. As soon as possible, the agency should provide data and guidance to county staffs to permit them to target more specifically on farms where control of erosion will have greatest effect on productivity and income. In the meantime, concentrating on farms with more serious erosion problems will be superior to spreading assistance broadly among farms on the basis of requests without considering farm-to-farm differences in severity of erosion. Our suggestions under criteria in section III may be helpful.

SCS targeting to a geographic area within a county or on farms where control of erosion will have the greatest effect on productivity should be supported with an information/education program to inform farmers and others of the logic of this action. Also, clear articulation of policies, reinforced with a reward system at the state and area level, can help strengthen county personnel resolve to pursue these actions.

Give more attention to "graduating" farmers.

Increased attention should to be given to "graduating" farmers who are fairly well along on adopting conservation plans. Most farmers will need occasional followup help, but SCS should not continue intensive work with good cooperators past the point it is needed.

Efforts to cut back on assistance to farmers will be more successful if it is announced ahead of time, and if efforts are made to help farmers develop skills for solving some of the less technical conservation problems. Eighty-two percent of the farmers in the sample said that continued help from SCS was needed on conservation practices. However, in Walla Walla where a conscious effort was made to graduate farmers, only 46 percent said that continued help was needed.

Encourage field staffs to devote greater efforts to reach new cooperators.

SCS reached a few new participants in some targeted counties as a result of the increased publicity and program activity under targeting. Progress mostly occurred where personal contacts were used to reach new participants. Such attempts were made in only a few counties.

The extent to which county SCS staffs devoted effort to reach new cooperators depended primarily on the increase in staff under targeting, how they saw the program objectives, and the personal philosophies and interests of the DCs. Some DCs said they had not received enough staff to make personal contacts with potential new cooperators. Some said they had not attempted to contact non-cooperators during the first few years of targeting, but planned to do so later, either because they expected to find more time later or because they believed they had only enough willing cooperators to keep them busy in an accelerated program for about 2 years.

Many SCS staff made clear that they had and intended to continue to concentrate their efforts on getting good to lukewarm cooperators to adopt more practices, or on farmers who were "ready, willing and able" to control erosion. Some SCS staff emphasized the inefficiency of trying to get a small, reluctant farmer to make changes on a small acreage when the same amount of effort could spur another farmer to change practices on several hundred acres of land. SCS objectives, which emphasize tons of soil saved, combined with pressures to show quick results, lead field staffs to concentrate on farmers who are easier to work with (and also on larger farms).

Our suggestion that SCS devote more effort to reaching new cooperators does not flow directly from our analysis and may just be a value judgment on our part. About a third of the farmers in our sample said they had never received help from SCS, and in some states, over 40 percent gave this response (some of them may not have erosion problems). The "ready, willing and able" philosophy of many SCS personnel may or may not be relevant in base CTA programs. But, such philosophy does not

seem relevant to targeted programs where additional staff and other resources are available to make major progress in critical problem areas. Major progress in some counties will require reaching at least some noncooperators who manage land with erosion problems. Some SCS staff concur with us that some portion of targeted resources should be dedicated to reaching noncooperators; some told us they considered it a reasonable and efficient goal to attempt to work with 70 to 75 percent of the farmers in targeted areas.

Use of mass media followed by personal contacts are likely to be effective approaches where SCS staff decide to try to reach new cooperators. Different approaches will be needed for different people, and indirect approaches through relatives, friends, or neighbors may be the most effective approach to some. Considerable followup will be needed in some cases.

At the conclusion of our farm surveys, we asked farmers: "What do you think could be done to get more farmers in this community interested and involved in conservation activities?" In all states, farmers emphasized greater information and educational efforts, including special attention to such groups as young farmers, small-farm operators, and landlords, and diffusion of information through other agencies and organizations. Other items included having more funds available for conservation programs, increasing the level of onfarm contacts and followup work, broadening the programs, and making the commodity programs more consistent with the conservation programs.

Another theme was mentioned second most often by farmers: Conservation is a function of the economic climate; there's little point in the agencies pushing conservation unless it pays off for the farmer. Specific comments from farmers included: "Farmers are already aware of the erosion problem; SCS has to show them how to practice conservation measures and still maintain a profitable operation;" and "Farmers would do more conservation work if there was a greater profit in farming. There are many farmers today that are having to make a decision whether to lose their farms to erosion or the mortgage holder."

In conservation planning, give greater emphasis to partial plans, flexibility, and fitting plans to farming systems.

Many SCS personnel put less emphasis on complete, formal farm conservation plans than in the past, and more emphasis on helping farmers get practices on the ground. Many emphasized partial plans: plans for a conservation treatment unit (CTU), a field, or part of the farm. Some DCs and some state SCS staffs still overemphasize complete, formal plans. We suggest further de-emphasis on such plans. Complete conservation plans can help some farmers envision the total job that needs to be done on their farm and the sequence and timing of actions needed. However, developing plans, especially for parts of farms with no critical erosion problems, requires a great deal of SCS staff input, leaving less time for other priority work. Some farmers are not interested in such total plans.

In the past, some county staffs have concentrated on getting farmers to adopt individual erosion control practices. Now, many try to get the farmers to do a complete job of planning a CTU or part of the farm. Many of them especially urged farmers to adopt a complete system or package of all practices needed to solve the erosion problem on the unit, rather than just adopting individual practices. Such approaches should be encouraged, provided that SCS stresses profitable practices.

Farmers told us that SCS conservation plans and practice specifications were often inflexible and sometimes did not fit their farms or their farming systems. The conservation professional and the farmer should jointly identify the problem; the farmer's ideas on solving the problem should be solicited, and two or more alternative solutions developed. Such an approach provides greater flexibility for farmers to take their personal preferences and financial conditions into account.

Give greater emphasis to profitability of erosion control practices.

Quite a few farmers told us that SCS often recommends practices that are too elaborate and expensive, that would not pay off, or that they could not afford even with cost-sharing. Also, a number of

SCS personnel indicated that SCS overemphasized technical factors, such as tons of soil saved, and gives too little attention to the impact of the conservation plan on farmers' incomes.

The main goal of SCS at the national and state levels has been to help farmers adopt conservation systems to reduce erosion to T. A number of state and county SCS staff point out that where there are steep slopes and erosive soils, it is often difficult to develop a feasible plan to get erosion down to T. Note this observation from a DC: "Where T is 5 tons and you have erosion of 25 tons, if you can get the farmers to adopt a practice that will bring erosion down to 12 to 13 tons, you've made quite a bit of progress." This observation makes good economic sense. In many cases it will not be best use of resources of either the farmer or the conservation agencies to bring erosion down to T levels, and indeed may be a serious waste of resources. The net marginal benefit of reducing erosion on one field from 25 to 12 tons per acre would generally be greater than the marginal benefit of reducing erosion from 10 to 5 tons on another field in order to get it down to T. However, this would depend on the soils involved and the cropping patterns in use.

Our targeting research indicates that under many circumstances conservation tillage is the most profitable erosion control practice.

Give further consideration to special audiences.

Special programs were designed to reach groups such as landlords, small farm operators, and young farmers in a few of the targeted areas. These efforts should be encouraged and expanded. Based on lags in adoption of practices on rented as compared with owned land, there appears to be a need for special programs to reach renters and landlords in some Tennessee, Alabama, and Missouri counties.

Continue the adoption of new technology in field offices.

SCS personnel told us that targeting had speeded up their adoption of technology, partly by making them more conscious of the need to make more efficient use of staff resources and partly by providing additional funds to buy needed equipment. This equipment included laser levels, two-way radio systems, and minicomputers. Computers can help in conservation planning, including planning in the field with farmers. SCS needs computer technology to use EPIC and other models developed jointly by ARS, ERS, and SCS for estimating productivity and offsite effects of conservation measures and many other purposes.

ASCS Programs

Encourage targeting of cost-share assistance on critical erosion areas within targeted counties.

Targeting of cost-sharing assistance to critical erosion areas within counties is consistent with targeting objectives. County ASCS committees will need strong encouragement to bring this about, as many will not have the stamina to pursue such a policy without some outside support. An information program should be used to inform farmers in the rest of the county that the targeting cost-share funds are being concentrated on a geographic area, and that cost-share funds from the base program will be available in other parts of the county.

Move further in concentrating cost-share funds on more erosive farms.

Many ASCS county committees and staffs do not give erosiveness high priority in making cost-share allocations, and others indicate they do not have adequate data to make this determination.

More county ASCS offices are requesting that SCS fill out the section of CRES Form AD-862 showing soil losses before and after the application of practices for which cost-sharing is requested. But, because of the complexity of the forms and other reasons, we found little evidence in 1984 that committees actually used this information in making decisions on applications.

County committees should be assisted in using erosion criteria in determining what farms receive cost-sharing and how much financial assistance will

be provided. In the past, lack of sufficient data to determine erosion problems among farms within a county may have handicapped both ASCS and SCS. More data are now available from the USDA National Resource Inventories and other sources for identifying farms with the greatest soil loss potential. As CEDs and their committees gain more experience with the Form AD-862, they will likely make more use of it in considering cost-sharing applications.

Encourage some counties to increase their cost-share rates.

Legislation authorizes cost-share rates of up to 75 percent, but many have cost-shared at 50 percent or less to spread funds among more farmers. Under targeting, some state ASCS offices and committees encouraged counties to update their cost-share data in line with increases in costs and to increase the percentage cost-share rates. Some state and county ASCS staff told us that ASCS could achieve more for its money by setting higher cost-share rates for two reasons: farmers with limited resources could apply practices they could not otherwise, and farmers could treat a larger area of their farms (in which case the effective percentage cost-share per acre for ASCS ends up being lower than the rate announced).

Encourage county ASCS committees to make larger average cost-share payments to farmers.

Average cost-share payments per farm per year amount to only a few hundred dollars in some counties (see app. table 23). County ASCS committees tend to spread the cost-share funds rather widely and thinly among farmers. Such action is somewhat understandable, given the political pressures on them and the fact that these farmer committees have to live with their neighbors.

Farmers, SCS staff, and some ASCS staffs told us they thought ASCS could make more effective use of cost-share funds if it concentrated resources on a limited number of farmers to help them get a major portion of their erosion under control. Then the funds could be rotated to other farms. We believe that concentrating cost-share funds on farmers with serious erosion problems supports targeting objectives.

Encourage wider use of long-term agreements.

A limited number of states and counties emphasized LTAs as part of the targeting program. Most ASCS and SCS personnel involved in the LTAs were enthusiastic about them. Some CEDs felt that for the first time under targeting, they had enough cost-share funds so they could push the concept with the assurance they would have enough funds to cover commitments under them.

Under a 5-year mini-LTA, a farmer carries out a conservation program with the assurance that up to $17,500 of cost-sharing funds will be available during the 5-year period if the farmer's part of the agreement is honored. Some ASCS county committees do not like LTAs because they commit relatively large amounts of funds to farmers who enter into the agreements, and because it is often necessary to revise the plans.

LTAs could be a useful part of the targeting program in many counties because they bring more focus to the program, lead to closer interlocking of SCS conservation planning and the ACP program, and concentrate resources on a longer term system to reduce erosion on farmers. LTA plans that emphasize conservation tillage will be appropriate under many circumstances.

Continue to encourage targeted counties to participate in the variable cost-share level program.

ASCS started a pilot variable cost-share level (VC/SL) program in 1981 in which the percentage cost-share paid to a farmer can vary from 5 to 75 percent depending on the percentage reduction in soil loss resulting from the application of cost-shared practices. By early 1984, about 140 counties had adopted it. While national and state offices encouraged the use of VC/SL under targeting, relatively few ASCS committees in targeted counties chose to participate. The program overemphasizes tons of soil saved and underemphasizes maintaining productivity; but it could be a useful part of targeting.

SCS Personnel Policies for Targeted Programs

The most crucial input in intensive technical assistance programs such as targeting is the personnel who plan and carry out the program. Therefore, special attention to personnel policies is needed.

SCS program evaluators should compare longer term progress with experienced as compared with inexperienced personnel in targeted programs.

Program managers rated experienced personnel as one of the most important factors contributing to progress made under targeting. Some program managers were not able to hire personnel with much experience because they could not offer high enough salaries to attract such personnel. They listed their inability to hire experienced personnel as the factor most limiting the expansion of the program under targeting.

Some felt the personnel system should be changed to accommodate the need. One state SCS staff person put it this way: "Targeting was the most important program SCS has had in the last 20 years, maybe 30. So, we should have put our best foot forward. To do so, we needed absolutely the best personnel. What we needed was people at the GS-11 level who didn't want to become administrators."

Some states, such as North Carolina and Indiana, decided to hire a larger number of inexperienced personnel rather than a smaller number of experienced persons. In North Carolina, most of the new staff added in the counties with targeted funds were hired at the GS-1 level. Most of the people hired lived in the communities where they were to work. Good character and work habits were the main selection criteria. In addition, efforts were made to find people who could understand, relate to, and work with local farmers. Of the initial 17 persons hired, eight were members of minority race, and two were women.

In early 1985, North Carolina program managers reported that it had taken about 12 months before the new hires were trained and ready to work on their own with farmers. They were then mostly at the GS-4 level. A few had found other jobs after 1 or 2 months. But, of those who stayed past 2 months, about 85 percent were still on the job (about 70 percent of the original total). North Carolina program mangers said the approach had worked extremely well. The new personnel had been effective in relating to and working with local farmers.

Many staff who will work with farmers in targeted programs will need additional training in interpersonal relationships, economics of conservation, and understanding of social systems.

Most people hired to do conservation planning and other intensive work directly with farmers already will be well-trained in conservation techniques. Therefore, the additional training provided in connection with targeting may need to concentrate on developing skills in interpersonal relationships. One state SCS staff person said: "SCS seems to have the technical know-how, but not the know-how for working with people." Given farmers' stress on profitability of conservation practices, some background in economics would be helpful. Training in the understanding of social systems and how to operate within them would be highly relevant, since specialists in adoption and diffusion believe that understanding values, attitudes, and community norms is more important in getting farmers to accept conservation practices than in the adoption of agricultural production technology.

Train district conservationists how to organize and manage larger staffs where large increases in staff are anticipated under targeting.

Several state SCS staffs said that management skills of some DCs had limited their abililty to accelerate their programs and they had not given enough attention to this potential problem in initiating the program. The training should concentrate on organization and personnel management. The training should also help the DC see that where there is a large increase in staff, the DC's role in the organization may need to change markedly. The DC will have less opportunity to work on farms and will have to spend more time as a manager, trainer, and communicator, delegate more, and do more by working through others.

Adjust the personnel system to permit some staff to stay longer in targeted areas.

Substantial investments were made in recruiting and training. But many of the personnel hired to work in targeted areas were on the job for only about 18 months before being promoted to an SCS position in another county. Missouri had a conscious plan of providing longer tenure for new employees in the targeted areas; it kept many of the new staff on the job for as long as 3 years.

Program effectiveness and efficiency in the use of resources would increase if more of the staff hired to work in targeted programs could be left on the job longer, especially staff who work well with farmers. Some staff would find it more professionally satisfying to be able to follow through on new activities they start.

Providing longer tenure suggests the need for changes in personnel evaluation criteria, and especially the need to provide professional and financial rewards other than promotion to administrative positions.

In some cases, attention may need to be given to helping staff improve performance or change assignments.

SCS national and state staffs used performance of their field staff as criterion in allocating resources to targeted areas and counties. This logical criterion is used by most administrators in allocating resources. On the other hand, where conservation problems are critical in a county, more attention may need to be given to helping staff improve their performance, or if necessary, to changing personnel for the good of the program.

Reward personnel most successful in carrying out targeting objectives.

SCS ought to push much further in developing and operating a personnel system that rewards personnel who effectively carry out targeting objectives such as: have planned rather than reactive programs, successfully convince farmers to adopt erosion control practives, use productivity and income concepts in working with farmers, or effectively cooperate with other agencies. Reward in terms of promotion to adminstrative position will be appropriate in some cases, but other rewards should also be considered, such as pay increases, cash awards, and commendations.

Give higher priority to professional improvement activities.

Many state, area, and county SCS staff told us they had recently done little to exchange ideas within the agency, to glean new ideas from outside, or to develop new skills. One DC who had led a fairly large staff for a number of years told us that some of his staff had never been to a meeting with other conservation professionals outside their county. A state staff person made this comment and suggestion: "Everyone in SCS is too busy doing whatever they're doing. There should be a committee at the national level that would bring in the best innovators from targeted areas and do some think tank type brainstorming for the future." Marginal investments in professional improvement activities such as exchange of ideas, travel to professional meetings, and participation in workshops could pay off in terms of staff performance, tenure, and morale.

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VIII. Appendix

Sources of Data

Farm surveys and phone surveys were the principal data collection instruments for this study.

Farm Surveys

The farm surveys were conducted from late November 1983 to early February 1984. Pretests were conducted with a small number of farmers in each of the survey states. The same questionnaire and interviewing procedures were used in all counties, although practices studied were different. This facilitated comparison of areas/samples and aggregation of data where appropriate.

In six counties, the sampling area consisted of the entire county. In Dyer, Mississippi River delta land in the western edge of the county was excluded, as farmers on this land have few erosion problems and little need for help from the conservation agencies. In Walla Walla, the low rainfall area in the northwest part of the county was excluded from the sampling area; this is primarily a wind erosion area. The targeting program was not available in this area.

As prelude to drawing the samples, lists of all farmowners and operators were obtained from the county ASCS offices. From these lists, landlords, institutions, and very large corporations were excluded from the farm population to be sampled. Also excluded were operators with fewer than 10 acres of cropland in Alabama, Missouri, and Tennessee, and operators with fewer than 50 acres of cropland in Washington.

Random samples of 90 farm operators were drawn from the reduced lists in each of the counties. We determined that these sample sizes were large enough to say with 95-percent confidence that the samples would accurately represent the total sample population in all counties, and that it would considerably exceed this confidence level in some counties. We also anticipated that these sample sizes would be adequate for the planned statistical analyses.

A number of steps were taken to increase the accuracy of the survey and reduce refusal rates. Experienced enumerators living in or near the study areas were employed. With only one exception, they were employed part-time by the Crop Reporting Service for its surveys. They were familiar with the area, people, and the most opportune times to call on farmers. The survey was conducted during the winter months when most farmers are not involved in field work and it was expected they would have more time and be more willing to cooperate on the survey. The enumerators participated in 2-day training schools.

Enumerators were instructed to make at least three attempts to reach farm operators on their lists before going on to a preselected alternate. The overall refusal rate was less than 2 percent. A few respondents chose not to answer certain questions, with the questions on which they refused varying widely from farmer to farmer.

Appendix table 34 shows the population and sampling frame for the targeting survey.

Phone Surveys

Phone interviews were conducted with county SCS and ASCS staffs in 13 states during the spring and summer of 1984.

States were selected to obtain representation of areas targeted in both 1981 and 1983, and to obtain geographic distribution. However, heavier weighting was given to areas targeted in 1981 to obtain reaction from conservation professionals with longer experience with targeting. Interviews were conducted with county staffs in 8 of the 10 counties targeted for cropland erosion control in 1981, including all 4 states in which the farm surveys were conducted and with staffs in 5 of the 15 states targeted in 1983.

Interviews were conducted with SCS district conservationists in targeted and nontargeted counties and with ASCS county executive directors in targeted counties. In selecting targeted counties to include in the sample, we randomly selected four targeted counties from nine states. In the four counties where farm surveys were conducted, the samples consisted of the two survey counties plus two other counties selected at random. In selecting counties from nontargeted areas, we removed counties with small crop acreages from the lists to exclude nonagricultural counties. Four counties were chosen randomly from the remaining counties.

Three questionnaires were developed for use with the three different samples of conservation professionals interviewed. Some staff on the sample lists could not be reached during the timeframe for the interviews, and a few declined to participate in the survey. The number and distribution of usable questionnaires completed is shown below:

State	Year targeted	SCS		ASCS
		Targeted	Nontargeted	targeted
			Number	
Alabama	1981	4	4	4
California	1983	3	0	3
Georgia	1981	4	4	4
Idaho	1981	4	3	4
Indiana	1983	3	4	4
Iowa	1981	4	3	3
Minnesota	1983	4	3	1
Missouri	1981	3	3	1
North Carolina	1983	4	4	4
Oregon	1981	3	4	4
Tennessee	1981	4	3	3
Texas	1983	4	3	4
Washington	1981	4	3	4
Total		48	41	43

Methodology

Test of Statistical Differences Among Areas

Chi-square analyses were run on the participation items in section IV to see if statistically significant differences existed between each of the two counties within the states and among the totals for the four states. Given the nature of the analysis, and the size of the samples, we believe that a level of 0.10 or less should be considered significant. However, all significance levels are listed at the bottom of the tables. A 0.10-level means that there is 1 chance in 10 that the differences shown could have arisen through chance or a sampling error. Lower numbers imply higher levels of confidence that statistically significant differences exist.

Procedures Used in Analyzing Factors Related to Farmers' Participation in the Conservation Delivery System

We analyzed factors related to farmers' SCS participation scores, changes in contacts with SCS from 1978-80 to 1981-83, and use of ASCS cost-share funds during 1981 to 1983. In preliminary analyses, hypothesized relationships between selected personal, farm business, and physical factors were explored. On the basis of these preliminary explorations, various decisions were made before the final analyses were run. One was that more insights could be gained by analyzing the data for each state separately rather than as an entire sample. Some explanatory variables were dropped because they were so closely correlated with other variables that it adversely affected the analysis. For example, age and years farmed on present farm are highly intercorrelated; years farmed was retained and age was dropped. Several variables, such as percent of land in row crops and amount of off-farm work were dropped because they proved to be of little value in explaining variation in the participation variables. For the most part, the final runs for all states utilized the same independent variables. However, as alternative measures of size of business, total acres of cropland had more explanatory power in Missouri and Tennessee but gross farm income had more explanatory value in Alabama and Washington, likely because of farm-to-farm variation in per-acre value of crops grown (especially affected by the extent to which farmers included peanuts in the rotation in Alabama).

Multiple regression analysis was used to study factors associated with the two continuous variables: SCS participation score and use of ASCS cost-sharing funds. Discriminant analysis was used for

change in contact with SCS since it was a categorical rather than a continuous variable. For the regression analyses, the coefficients are the standardized regression coefficients (in app. tables 27 and 29); for the discriminant analysis, they are the canonical discriminant function coefficients (app. table 28). In either case, the coefficients represent the relative contribution the independent variable makes to the explanation of the variation in the participation variable; the larger the number the more it contributes, other things being equal. Associated with each coefficient is a significance level that indicates the extent to which the relationship is due to sampling error or chance.

At the bottom of the columns for each state are R^2 for regression and C^2 for discriminant analysis. These represent the proportion of the variation in the participation variable that is associated with the entire group of variables; for example, an R^2 of 0.35 means that 35 percent of the variation is associated with the independent variables used in the analysis. Following each R^2 and C^2 is the significance level for the entire analysis.

The dependent variables consist of the following.

SCS participation score. The SCS participation score was constructed from the following four items, with their relative weights given in parentheses: whether the farmer reported receiving help from SCS in 1981-83 (5), participation in five SCS activities in 1983 (10), whether the farmer had an SCS farm plan (7), and whether the farmer had signed a cooperative agreement with the soil conservation district (3). Scores ranged from zero to the maximum possible, which was 25.

Change in contact with SCS. Farmers who said their contacts with SCS in 1981-83 were greater than in 1978-80 were put in one category; those who said about the same or less were put in the other.

Use of cost-share funds. This variable consisted of the cumulative total of cost-share funds the farmer received for applying conservation practices during the 3-year period, 1981-83.

Following are brief explanations of the independent variables for which the definitions are not obvious.

Perception of erosion on own farm. Percentage of acres of their owned and rented land that farmers rated as having a severe erosion problem in 1980.

Concern for erosion in county. An index made up from farmers' ratings on five-point scale of the seriousness of seven possible erosion problems in their county.

1980 level of adoption. Percentage of total acres of owned and rented cropland on which farmers had adopted eight erosion control practices recommended for their area by SCS (numbers could exceed 100 percent since farmers could put more than one practice on the same field).

Oriented toward farming as a way of life. A plus sign by the coefficient indicates farmers saw farming mostly as a way of life. A minus sign indicates they saw farming mostly as a commercial operation to be operated like any other business.

Concerned about income in the longer run. Number of years in the future that farmer was more concerned about farm income. A plus sign indicates farmers were more concerned in the longer run. A minus sign indicates they were more concerned in the shorter run.

Risk prone. Index built from farmers' ratings on a five-point scale of their agreement with four statements to give an indication of whether they were more risk prone (plus) or risk averse (minus).

Feels there is peer pressure to adopt. Categories showing farmers' responses to a question as to whether farmers in the area tended to be critical or not critical of farmers who do not follow erosion control practices on land that has an erosion problem. A plus sign indicates a farmer feels there was pressure. A minus sign indicates they did not feel there was pressure.

Race. Categories for black (plus) or white (minus) in Alabama and Tennessee (there were no farmers of other races in the samples in these states).

Appendix table 1—Number of states, counties, and acres targeted by SCS for conservation technical assistance by purpose, 1981-84

Purpose	1981			1982			1983			1984		
	States	Counties	Acres	States	Counties	Acres	States	Counties	Acres	States	Counties	Acres
	--No.--		Thou.	--No.--		Thou.	--No.--		Thou.	--No.--		Thou.
Cropland erosion control	10	132	20,538	10	132	20,538	24	336	59,801	39	636	107,716
Water conservation	8	74	3,479	8	74	3,479	14	153	15,991	17	169	21,028
Rangeland erosion control	0	0	0	0	0	0	1	3	423	1	3	423
Total	[1]15	206	24,017	[1]15	206	24,017	[1]31	492	76,215	[1]45	808	129,167

[1]Number of states with one or more targeted areas; numbers in the column will not add to this total since some states had areas targeted for more than one purpose.

Source: Data supplied by SCS, USDA.

Appendix table 2—Targeted funds by purpose, SCS and ASCS, 1981-84

Purpose	1981			1982			1983			1984		
	SCS	ASCS	Total	SCS	ASCS	Total	SCS	ASCS	,Total	SCS	ASCS	Total
	1,000 dollars											
Cropland erosion control	3,295	0	3,295	5,546	6,500	12,046	10,226	14,200	24,426	22,715	15,035	37,800
Water conservation	705	0	705	1,054	2,500	3,554	2,154	4,550	6,704	4,165	3,840	8,005
Rangeland erosion control	0	0	0	0	0	0	120	150	270	130	125	255
Total	4,000	–	4,000	6,600	9,000	15,600	12,500	18,900	31,400	[1]27,500	19,000	[1]46,500

[1]Numbers will not add to these totals due to SCS reserve held at national level.

Source: Data supplied by SCS and ASCS, USDA.

Appendix table 3—SCS technical assistance budgets and ASCS cost-sharing funds, 1981-83 compared with 1980, study areas

Agency and year	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
							Dollars						
SCS:[1]													
1980	54,215	54,345	54,280	74,687	60,936	67,812	71,300	63,800	67,550	46,226	82,168	64,197	63,460
1981	68,560	64,308	66,434	77,674	99,981	88,828	76,700	68,600	72,650	93,580	210,714	152,147	95,015
1982	85,324	68,046	76,685	83,791	109,140	96,466	80,100	86,300	83,200	88,087	132,780	110,434	91,696
1983	77,634	80,785	79,210	93,939	79,878	86,908	94,800	108,300	101,550	77,707	141,485	109,596	94,316
Av. 1981-83	77,173	71,046	74,110	85,135	96,333	90,734	83,867	87,733	85,800	86,458	161,660	124,059	93,676
							Ratio						
1981-83 av. / 1980	1.42	1.31	1.37	1.14	1.58	1.34	1.18	1.37	1.27	1.87	1.97	1.93	1.48
							Dollars						
ASCS:[2]													
1980	66,313	57,380	61,846	126,559	119,137	122,848	79,202	69,052	74,127	60,131	144,808	102,470	90,323
1981	80,136	84,322	82,229	198,835	116,770	157,802	71,037	102,376	86,706	55,511	185,226	120,368	111,776
1982	136,075	105,598	120,836	206,017	186,667	196,342	107,266	151,417	129,342	99,379	216,934	158,156	151,169
1983	232,021	111,820	171,920	225,967	184,493	205,230	95,134	150,562	122,848	48,324	235,935	142,130	160,532
Av. 1981-83	149,411	100,580	124,995	210,273	162,643	186,458	91,146	134,785	112,965	67,738	212,698	140,218	141,159
							Ratio						
1981-83 av. / 1980	2.25	1.75	2.02	1.66	1.36	1.52	1.15	1.95	1.52	1.13	1.47	1.37	1.56
							Dollars						
SCS & ASCS:													
1980	120,528	111,725	116,126	201,246	180,073	190,660	150,502	132,852	141,677	106,357	226,976	166,667	153,783
Av. 1981-83	226,584	171,626	199,105	295,408	258,976	277,192	175,013	222,518	198,765	154,196	374,358	264,277	234,835
							Ratio						
1981-83 av. / 1980	1.88	1.54	1.71	1.47	1.44	1.45	1.16	1.67	1.40	1.45	1.65	1.58	1.53

[1]Technical assistance budgets.
[2]Cost-sharing funds. Shown are the amounts available to commit to farmers during the year, which consist of new allocations plus any *unobligated* carryover the counties were permitted to keep.

Source: Data supplied by state SCS and ASCS offices.

Appendix table 4—Farmers indicating they received assistance from SCS, 1981-83, study areas

Received assistance	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Yes	48	52	50	39	40	39	40	60	50	49	53	51	48
No	52	48	50	61	60	61	60	40	50	51	47	49	52
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.08.
Differences between counties within states significant at the following levels: AL-0.70; MO-0.99; TN-0.01; WA-0.61.

Appendix table 5—Farmers who received cost-sharing assistance according to ASCS records, 1981-83, study areas

Received cost-sharing	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Yes	53	29	41	28	20	24	35	52	43	45	57	51	40
No	47	71	59	72	80	76	65	48	57	55	43	49	60
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.34; MO-0.91; TN-0.01; WA-0.01.

Appendix table 6—Number of times farmers reported SCS visited farm during 1983, study areas

Number of farm visits	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
						Percent of farm operators							
0	52	58	55	68	64	66	63	41	52	47	33	40	53
1	11	11	11	8	9	8	9	5	7	22	23	23	12
2	10	8	9	8	10	9	9	10	10	10	18	14	11
3 or 4	11	9	10	10	9	10	6	19	12	12	13	12	11
5 or more	16	14	15	6	8	7	13	25	19	9	13	11	13
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.96; MO-0.30; TN-0.01; WA-0.37.

Appendix table 7—Number of times farmers reported visiting SCS office during 1983, study areas

Number of office visits	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
						Percent of farm operators							
0	42	51	46	55	50	52	63	42	52	29	15	21	43
1	10	10	10	5	11	8	18	11	15	8	18	13	11
2	10	12	11	14	15	15	7	20	14	24	12	18	14
3 or 4	22	12	17	15	10	12	8	16	12	15	26	21	16
5 or more	16	15	16	11	14	13	4	11	7	24	29	27	16
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.61; MO-0.38; TN-0.01; WA-0.01.

Appendix table 8—Number of SCS-conducted meetings, tours, or field days farmers reported attending in their county during 1983, study areas

Number	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
0	85	88	86	87	92	90	97	80	88	38	37	38	75
1 or more	15	12	14	13	8	10	3	20	12	62	63	62	25
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.69; MO-0.47; TN-0.05; WA-0.80.

Appendix table 9—Farmers who reported having a soil conservation plan, study areas

Had a farm plan	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Yes	31	44	38	32	11	21	18	32	25	41	33	37	30
No	69	56	62	68	89	79	82	68	75	59	67	63	70
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.11; MO-0.01; TN-0.05; WA-0.24.

Appendix table 10—Relative age of soil conservation plan reported by farmers who had a plan, study areas

Year plan was prepared	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Before 1970	16	20	19	27	40	31	20	14	17	34	42	38	26
1970-80	40	57	49	42	40	42	14	33	25	54	42	48	43
1981-83	44	23	32	31	20	27	66	53	58	12	16	14	31
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.21; MO-0.70; TN-0.40; WA-0.50.

Appendix table 11—Status of soil conservation plan reported by farmers who had a plan, study areas

Status of plan	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Complete farm plan	63	82	74	67	40	60	75	46	57	78	57	68	66
Partial plan, or plan for one or two fields	37	18	26	33	60	40	25	54	43	22	43	32	34
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.21.
Differences between counties within states significant at the following levels: AL-0.14; MO-0.28; TN-0.13; WA-0.12.

Appendix table 12—Type of agreement with ASCS reported by farmers who received cost-sharing assistance, study areas

Type of agreement	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Annual	61	77	69	74	92	83	85	56	67	88	84	86	76
Long-term	39	23	31	26	8	17	15	44	33	12	16	14	24
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.05.
Differences between counties within states are significant at the following levels: AL-0.35; MO-0.15; TN-0.10; WA-0.98.

Appendix table 13—Longer term cooperation with SCS reported by farmers, study areas

Longer term cooperation	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Didn't work with SCS	31	28	29	43	40	41	34	29	32	19	23	20	31
Used SCS for help only on specific problems	50	50	50	34	47	41	54	37	45	50	51	51	47
Worked moderately or very closely with SCS on a continuous basis	19	22	21	23	13	18	12	34	23	31	26	29	22
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.39; MO-0.03; TN-0.02; WA-0.48.

Appendix table 14—Longer term use of ASCS cost-sharing reported by farmers, study areas

Longer term use	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Have not used	35	20	27	36	18	27	31	20	26	23	20	22	25
Used once or twice	30	39	35	29	32	31	48	35	41	46	54	50	39
Used fairly often or regularly	35	41	38	35	50	42	21	45	33	31	26	28	36
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.08; MO-0.01; TN-0.01; WA-0.81.

Appendix table 15—Total hours of technical assistance provided to survey farmers during 1981-83 reported by SCS, study areas[1]

Hours of technical assistance	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
0	14	18	16	46	60	53	49	52	51	41	13	26	36
1-10	9	17	13	11	11	11	15	6	10	31	34	33	17
11-25	14	40	27	24	22	23	16	14	15	22	14	18	21
26-50	18	13	16	14	5	9	14	10	12	4	12	8	11
51 or more	45	12	28	5	2	4	6	18	12	2	27	15	15
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.01; MO-0.16; TN-0.04; WA-0.01.

[1]Hours shown are cumulative totals for the 3-year period.

Appendix table 16—Total cost-sharing funds provided to survey farmers during 1981-83 reported by ASCS, study areas[1]

Dollars of cost-sharing funds	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farms operators												
0	48	71	58	73	79	76	66	48	58	61	43	51	61
1-500	16	6	11	2	1	2	3	7	5	8	—	4	5
500-1,000	10	17	14	2	5	3	13	10	11	7	3	5	8
1,001-2,000	17	4	11	10	9	10	9	21	15	6	23	15	13
2,001-3,500	6	2	4	8	5	6	9	9	9	10	13	12	8
3,501 or more	3	0	2	5	1	3	0	5	2	8	18	13	5
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.01; MO-0.54; TN-0.04; WA-0.01.

[1]Dollars shown are cumulative totals for the 3-year period.

Appendix table 17—Total value of SCS technical assistance and ASCS cost-sharing provided to survey farmers during 1981-83, study areas[1]

Dollars	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
0	12	17	15	43	59	51	41	43	42	34	10	21	32
1-500	28	50	39	30	20	24	18	4	10	33	25	30	26
501-1,000	21	10	15	3	3	3	16	11	14	7	6	7	10
1,001-2,000	14	14	14	9	10	10	13	17	15	7	17	12	12
2,001-3,500	19	8	14	8	6	7	10	18	14	6	18	12	12
3,501 or more	6	1	3	7	2	5	2	7	5	15	24	18	8
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.01; MO-0.31; TN-0.09; WA-0.01.

[1]Dollars shown are cumulative totals for the 3-year period. Hours of technical assistance were converted to dollars using cost-per-hour data for each county provided by the state SCS offices. Actual dollar values of cost-share funds were used.

Appendix table 18—Farmers' perceptions of changes in SCS activities from 1980 to 1983, study areas

Perceive changes	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Yes	39	35	37	39	46	43	35	41	38	56	76	68	46
No	61	65	63	61	54	57	65	59	62	44	24	32	54
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

· Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.61; MO-0.45; TN-0.48; WA-0.01.

Appendix table 19—Farmers' perceptions of the difficulty in obtaining ASCS cost-sharing funds in 1983 compared with 1981, study areas

Difficulty in 1983 compared with 1981	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Easier	14	4	9	15	10	13	7	29	20	12	16	14	14
About the same	52	41	46	61	60	60	65	48	55	48	71	61	55
Harder	34	55	45	24	30	27	28	23	25	40	13	25	31
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.1; MO-0.60; TN-0.01; WA-0.01.

Appendix table 20—Farmers' awareness of targeting program, study areas

Awareness[1]	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Aware	41	42	41	50	41	45	47	61	54	51	67	59	50
Somewhat aware	10	19	15	10	14	12	13	20	16	25	21	23	16
Not aware	49	39	44	40	45	43	40	19	30	24	12	18	34
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.33; MO-0.48; TN-0.01; WA-0.08.

[1]Farmers were rated as being "aware" if they responded positively to the initial question on whether they had heard about the targeting program. They were rated as "somewhat aware" if they responded negatively to the initial question but positively to either of two follow-up questions.

Appendix table 21—Amount of contact farmers reported having with SCS in 1981-83 compared with 1978-80, study areas

Amount of contact 1981-83 compared with 1978-80	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Greater	30	32	31	17	17	17	23	35	29	24	48	37	29
About the same	58	54	56	71	67	69	63	58	61	62	48	54	60
Less	12	14	13	12	16	14	14	7	10	14	4	9	11
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within state significant at the following levels: AL-0.74; MO-0.69; TN-0.11; WA-0.01.

Appendix table 22—Number of individuals in the county who received cost-share funds reported by ASCS, 1980-83, study areas

Year	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
							Individuals						
1980	250	200	225	70	88	79	51	96	74	25	42	34	103
1981	128	140	134	53	100	76	86	133	110	36	68	52	93
1982	150	66	108	59	107	83	100	107	104	36	77	56	88
1983	54	123	88	98	112	105	113	151	132	45	99	72	99

Appendix table 23—Average cost-share payment per survey farmer who received cost-share funds reported by ASCS, 1980-83, study areas

Year	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
							Dollars						
1980	286	782	424	1,555	1,677	1,595	696	839	814	1,106	2,113	1,719	949
1981	585	896	695	1,131	1,201	1,159	769	748	757	1,481	1,960	1,761	1,043
1982	636	936	689	1,627	1,483	1,567	1,001	1,114	1,080	1,384	1,569	1,577	1,186
1983	876	1,342	966	1,960	1,454	1,740	829	974	930	2,600	1,745	2,004	1,411

Appendix table 24—Survey farmers who had more or less than 10-percent increase in ASCS cost-share funds as an average for 1981-83 compared with 1980, study areas

Change in use of ASCS cost-share funds from 1980 to 1981-83	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Less than 10% increase[1]	59	76	67	76	79	78	67	62	64	75	50	62	68
More than 10% increase	41	24	33	24	21	22	33	38	36	25	50	38	32
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.02; MO-0.69; TN-0.60; WA-0.01.

[1]Includes those who had decreases.

Appendix table 25—Sources from which farmers reported receiving help on soil erosion problems, study areas[1]

Source	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
None	77	40	59	49	35	42	55	63	59	20	20	20	44
County or state extension	10	39	25	18	23	24	31	21	27	64	38	50	31
Neighbors	6	17	11	28	37	33	24	10	17	56	50	53	29
Chemical and fertilizer companies	7	16	11	16	19	18	5	6	5	55	56	55	23
Farm equipment companies/ dealers	2	13	8	16	10	13	1	1	1	26	32	29	13
Agricultural experiment station	5	27	16	2	3	3	2	3	3	26	27	27	12
Land improvement contractor	9	8	8	18	30	24	9	8	8	7	1	4	11
Forest Service	8	14	11	1	1	1	0	3	2	3	3	3	4
Agricultural Research Service	0	2	1	2	2	2	1	1	1	6	10	8	3
SCS[2]	48	52	50	39	40	39	40	60	50	49	53	51	48
ASCS[3]	53	29	41	28	20	24	35	52	43	45	57	51	40

[1]Utilization of more than one source is possible.
[2]From appendix table 4.
[3]From appendix table 5.

Appendix table 26—Number of sources other than SCS and ASCS from which farmers reported receiving help on soil erosion problems, study areas

Number of sources	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
0	77	40	59	49	35	42	55	63	59	20	20	20	44
1	13	23	18	22	28	25	26	24	25	18	15	17	21
2	5	18	11	17	21	19	14	10	12	13	21	17	15
3	2	6	4	7	8	7	2	2	3	19	28	23	10
4	1	7	4	3	6	5	2	0	1	15	6	11	5
5 or more	2	6	4	2	2	2	0	1	1	15	10	12	5
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.01; MO-0.69; TN-0.48; WA-0.21.

Appendix table 27—Factors associated with farm operators' SCS participation scores (regression analysis)

Explanatory variables	Alabama		Missouri		Tennessee		Washington	
	Coefficient	Significance level	Coefficient	Significance level	Coefficient	Significance level	Coefficient	Significance level
Personal:								
Perception of erosion on own farm	0.31	0.74	0.03	0.77	0.07	0.22	0.07	0.50
Concern for erosion in county	.24	.01	−.06	.41	.06	.44	.22	.04
1980 level of practice adoption	.14	.07	.04	.62	.20	.01	.02	.82
Years farmed on present farm	.26	.01	.01	.97	.13	.13	.12	.26
Education	.16	.06	.24	.01	.20	.01	.02	.89
Oriented toward farming as way of life	−.05	.47	.01	.97	.15	.03	−.18	.07
Concerned about income in longer run	.04	.59	.12	.14	.20	.01	.04	.66
Risk prone	.15	.05	.17	.08	.11	.17	.09	.40
Feels there is peer pressure to adopt	.12	.13	.03	.70	.19	.01	.14	.17
Race (+ = black; − = white)	−.12	.11	− −	− −	.07	.34	− −	− −
Farm business:								
Acres of cropland	− −	− −	.19	.09	.25	.01	− −	− −
Gross farm income	.37	.01	− −	− −	− −	− −	.26	.03
Percent of land rented	−.15	.07	−.07	.45	−.01	.90	.02	.84
Debt per acre	.01	.92	.17	.06	.01	.96	.05	.62
R^2	.41	.01	.30	.01	.39	.01	.31	.01

− − means the explanatory variable was not included in the analysis for that state.

Appendix table 28—Factors associated with change in farm operators' contact with SCS from 1978-80 to 1981-83 (discriminant analysis)

Explanatory variables	Alabama		Missouri		Tennessee		Washington	
	Coefficient	Significance level	Coefficient	Significance level	Coefficient	Significance level	Coefficient	Significance level
Personal:								
Perception of erosion on own farm	0.04	0.20	−0.07	0.30	0.05	0.48	−0.32	0.14
Concern for erosion in county	.47	.01	−.26	.23	.22	.01	.08	.22
1980 level of practice adoption	−.12	.14	.01	.02	−.22	.02	.45	.08
Years farmed on present farm	−.07	.76	−.04	.22	.14	.46	−.44	.01
Education	−.16	.11	.48	.01	.72	.01	.35	.11
Oriented toward farming as way of life	−.41	.14	.37	.07	.24	.30	−.17	.08
Concerned about income in longer run	−.19	.15	−.05	.10	.38	.09	.01	.14
Risk prone	.19	.08	.13	.04	.15	.01	−.26	.13
Feels there is peer pressure to adopt	−.15	.63	−.09	.85	.09	.15	.16	.45
Race (+ = black; − = white)	.51	.05	− −	− −	.39	.45	− −	− −
Farm business:								
Acres of cropland	− −	− −	.60	.01	.36	.01	− −	− −
Gross farm income	.36	.02	− −	− −	− −	− −	.03	.59
Percent of land rented	−.15	.18	.11	.03	.11	.40	−.37	.02
Debt per acre	−.32	.01	.08	.41	−.35	.01	.17	.88
C^2	.27	.01	.23	.01	.31	.01	.27	.01

− − means the explanatory variable was not included in the analysis for that state.

Appendix table 29—Factors associated with amount of ASCS cost-share funds used by farm operators during 1981-83

Explanatory variables	Alabama		Missouri		Tennessee		Washington	
	Coefficient	Significance level	Coefficient	Significance level	Coefficient	Significance level	Coefficient	Significance level
Personal:								
Perception of erosion on own farm	0.02	0.87	−.14	0.12	0.20	0.02	0.22	0.04
Concern for erosion in county	.13	.16	.02	.78	−.10	.24	−.18	.08
1980 level of practice adoption	.13	.14	−.05	.55	.22	.01	−.02	.84
Years farmed on present farm	.04	.64	−.06	.54	−.03	.73	−.01	.93
Education	−.02	.79	.17	.06	−.04	.68	−.01	.93
Oriented toward farming as way of life	−.17	.05	−.08	.34	.14	.08	−.08	.39
Concerned about income in longer run	−.06	.49	−.11	.18	.01	.97	−.05	.61
Risk prone	.10	.25	.09	.36	−.04	.64	.13	.19
Feels there is peer pressure to adopt	.05	.51	−.05	.56	−.01	.93	−.01	.99
Race (+ = black; − = white)	−.15	.09	− −	− −	−.08	.28	− −	− −
Farm business:								
Acres of cropland	− −	− −	.29	.01	.30	.01	− −	− −
Gross farm income	.28	.01	− −	− −	− −	− −	.08	.43
Percent of land rented	.09	.31	−.10	.33	.11	.22	.13	.19
Debt per acre	.01	.86	.14	.12	.04	.61	.01	.94
R^2	.20	.02	.33	.01	.27	.01	.18	.11

− − means the explanatory variable was not included in the analysis for that state.

Appendix table 30—Farmers' concern for soil erosion in 1983 compared with 1980, study areas

Concern for soil erosion 1983 compared with 1980	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
More	57	69	63	60	48	54	64	88	76	83	79	81	68
About the same	34	22	28	31	38	34	28	11	19	15	19	17	25
Less	9	9	9	9	14	12	8	1	5	2	2	2	7
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states are significant at 0.01.
Differences between counties within states are significant at the following levels: AL-0.21; MO-0.29; TN-0.01; WA-0.77.

Appendix table 31—Farmers' attitudes toward concentrating conservation assistance in critical erosion areas, study areas

Attitudes	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Good idea even though other areas receive less funds	28	23	25	33	18	26	25	38	31	30	33	32	28
Good idea if it has no effect on other areas	37	17	27	20	16	18	38	28	33	22	18	20	25
Good idea if proven effective	30	58	44	44	61	52	33	33	33	43	48	44	44
Not a good idea in any case	5	1	3	1	5	3	4	0	2	3	0	2	2
Other responses	0	1	1	2	0	1	0	1	1	2	1	2	1
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.03.
Differences among counties within states significant at the following levels: AL-0.01; MO-0.04; TN-0.09; WA-0.35.

Appendix table 32—Farmers' ratings of the helpfulness of SCS to farmers in their counties, study areas

Ratings of helpfulness	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Not at all or slightly helpful	8	5	6	10	8	9	13	6	10	6	7	6	8
Somewhat helpful	16	17	17	26	45	35	31	16	23	20	35	28	25
Very helpful	76	78	77	64	47	56	56	78	67	74	58	66	67
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.61; MO-0.07; TN-0.01; WA-0.02.

Appendix table 33—Farmers' ratings of the helpfulness of ASCS to farmers in their counties, study areas

Ratings of helpfulness	Alabama			Missouri			Tennessee			Washington			Average all areas
	Barbour	Henry	Average	Daviess	Harrison	Average	Dyer	Haywood	Average	Columbia	Walla Walla	Average	
	Percent of farm operators												
Not at all or slightly helpful	13	11	12	10	8	9	28	5	16	5	13	9	11
Somewhat helpful	34	24	29	31	44	37	24	20	22	36	32	34	31
Very helpful	53	65	59	59	48	54	48	75	62	59	55	57	58
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Differences among states significant at 0.01.
Differences between counties within states significant at the following levels: AL-0.61; MO-0.07; TN-0.01; WA-0.02.

Appendix table 34—Population and sampling frame for targeting survey, 1983

State and counties	Survey population		Sample[2]
	Original	Reduced[1]	
		Number	
Alabama:			
Barbour	759	569	87
Henry	408	306	90
Total	1,167	875	177
Missouri:			
Daviess	924	693	87
Harrison	1,097	823	88
Total	2,021	1,516	175
Tennessee:			
Dyer	966	724	87
Haywood	854	640	89
Total	1,820	1,364	176
Washington:			
Columbia	172	129	87
Walla Walla	150	112	94
Total	322	241	181
Grand total	5,330	3,996	709

[1]The original population was reduced because of the exclusion of farms with fewer than 10 acres of cropland in Alabama, Missouri, and Tennessee and fewer than 50 acres in Washington. Institutional farms, people who no longer farm, and landlords only were also excluded.

[2]This sample size provides a confidence level of 95 percent.

Note: Sampling procedure based on T. Yamane, *Elementary Sampling Theory,* Prentice Hall, Inc., 1967, pp. 99, 398.

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